


Desert



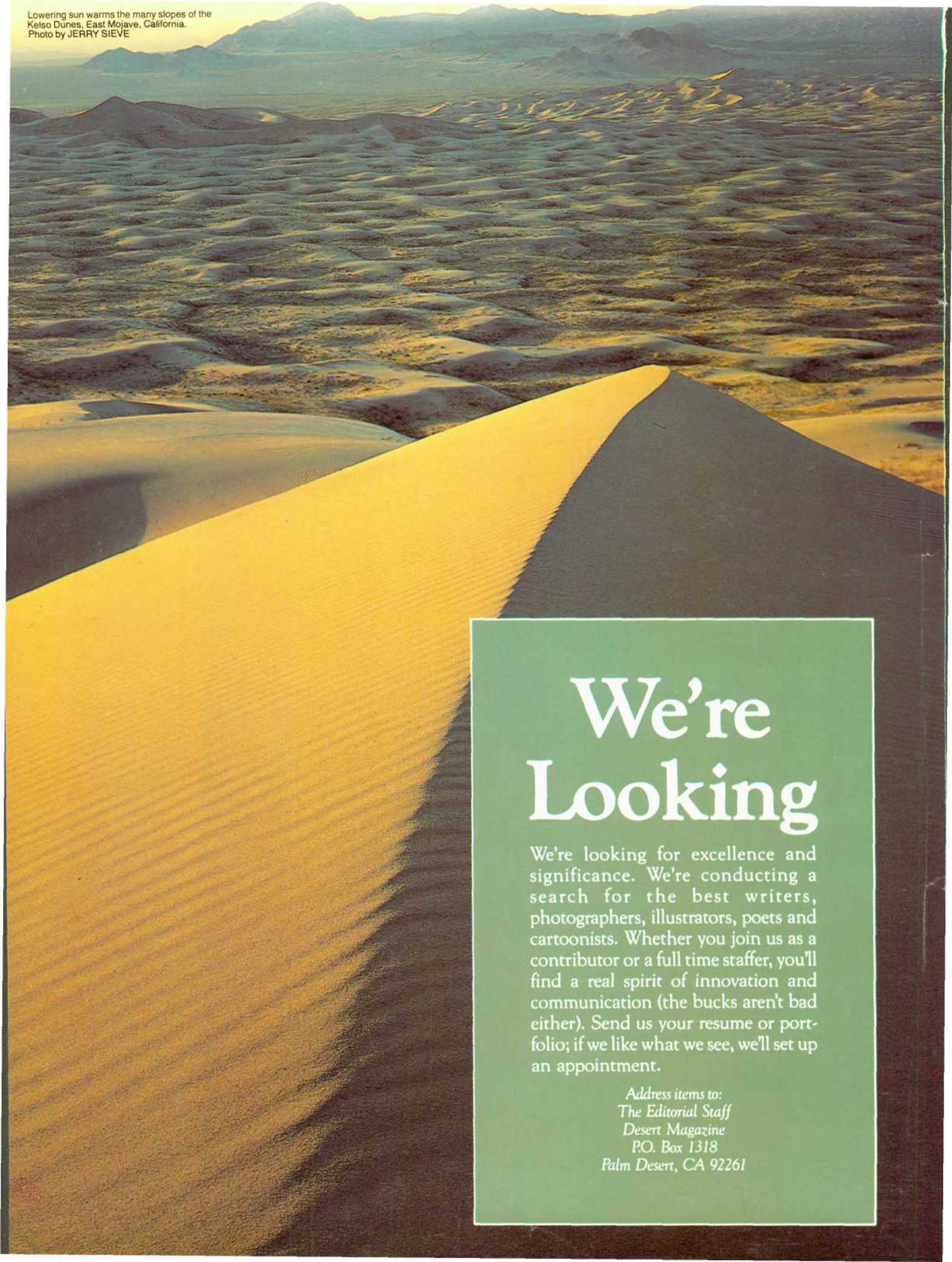
Padre Kino
His Life and Times

Mountain Lion
The Great Cat's Last Stand

Reprieve for Brighty
Cleveland Amory
Saves the Feral Burros

**The Best of
David Muench**
A Photo Album





Lowering sun warms the many slopes of the
Kelso Dunes, East Mojave, California.
Photo by JERRY SIEVE

We're Looking

We're looking for excellence and significance. We're conducting a search for the best writers, photographers, illustrators, poets and cartoonists. Whether you join us as a contributor or a full time staffer, you'll find a real spirit of innovation and communication (the bucks aren't bad either). Send us your resume or portfolio; if we like what we see, we'll set up an appointment.

*Address items to:
The Editorial Staff
Desert Magazine
P.O. Box 1318
Palm Desert, CA 92261*

Desert

VOLUME 44 NUMBER 4 May, 1981

A Cathedral in the Rockies

by John Wesley Sering

There before us, enhanced by the rays of the setting sun, lay what seemed to be an enchanted city.

page 8

The Mountain Lion

by Karen Sausman

Regardless of what you call this cat, he's a fascinating animal. His power and strength are legendary.

page 14

Sanguinez: Baja's Prison of Hope

by Mary Eileen Twyman

The padre had assured Pablo he was forgiven. He was not meant to live mired and trapped in guilt.

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Why Owens Lake is Red

by Wayne P. Armstrong

The coloration of Owens Lake is caused by astronomical numbers of microscopic algae and bacteria.

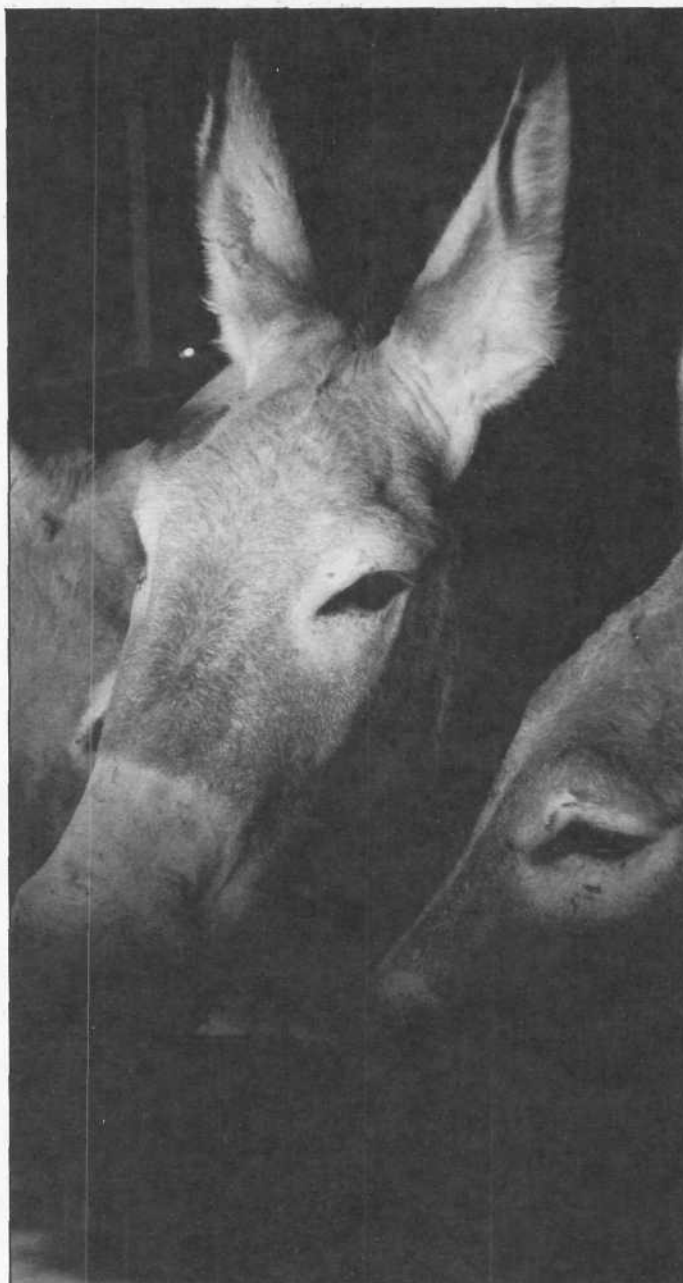
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The Cactus City Clarion:

Mary Eileen Twyman, Ed.

News and nostalgia as seen by the nosiest newspaper in the west. Where to go and what you'll find when you get there.

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Hueco Tanks: Island or Rock Pile?

by Joseph Leach

Thirty minutes east of El Paso, a reddish stone uplift floats serenely over the plain like a great island in time.

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The Life and Times of Padre Kino

by Joseph F. Kelly

True to his vow of poverty, he was never known to keep a gift, sleep in a bed or own more than two shirts.

page 42

Reprieve for Brighty

by Alan J. Kania

The youngster, with tears in his eyes, peered under the chain barrier and whimpered, "Where's Brighty?"

page 50

The Best of David Muench

by Don MacDonald

This famous photographer calls himself "a maverick who studied under the tutorship of nature." His work, indeed, is unique.

page 54

George Van Tassel and His Anti-Gravity Time Machine

by Rosemary Evans

No one doubted his claim to have hosted visitors from outer space at his home inside Giant Rock.

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Our Cover:

Clouds, chased by high pressure clearing, roll across California's Mt. San Jacinto, witnessed by cholla and barrel cactus in the foreground. Photo by David Muench, 10 a.m. February, 1970. E6 Ektachrome, 1/10th sec. at F32, using 360mm Rodenstock lens.

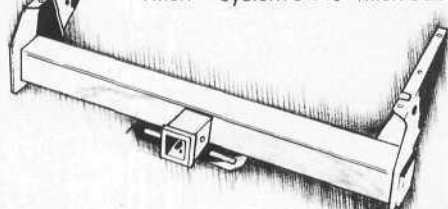
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Desert

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EDITORIAL

RETIRED LT. Colonels, entry-level journalism majors, housewives who sign themselves "Ms.," persons who order Tecate because they are afraid to pronounce Tres XXX (*Trayz-Ehkee*); in short, anyone who dreams someday of being the editor of a magazine, any magazine, had best be thick-skinned.

For to be an editor, one must write editorials, and for every editorial on whatever subject, there are 100 to 1,000 of you out there who will disagree with whatever the editor says. And a percentage of you will fire back what in essence is a counter-editorial of your own.

You have the advantage. You can call me a misinformed, myopic twerp and I won't cancel your subscription. If I, on the other hand, *compliment* you with the suggestion that human beings deserve prior rights to land—ahead, say, of the Coachella Valley fringe-toed lizard—there will be among you some who believe the lizard is their equal. And those that do inevitably cancel their subscriptions. Now should I side with equal opportunity for the lizard, then land developers will cancel their subscriptions. Luckily, the lizards themselves don't read.

The editor can choose among broad and narrow issues for his editorial, or use one issue to illustrate another. The lizard as an issue, for example, is narrow but when one weighs the rights of animals versus man's, the issue becomes broad indeed, almost as beamy as the Sagebrush Rebellion.

There's one that causes our subscriber count to fluctuate! The Rebellion, which incidentally is a movement and not an organization, dedicates itself to getting federal government out of the land business. The goal is to return these lands to the states, where they would remain the property of the people. There's no suggestion here that the lands be opened to commercial exploitation, is there? And since no state can deny free access to visitors from another state, why does Joe Jones in New York, where federal lands hardly show on the map, cry foul?

Joe, by his fear, implies that industry can more easily manipulate state governments than the federal, and thus move in and despoil these lands. Joe,

by his anger, must think it's Yellowstone or Yosemite that's being threatened—his, Joe's, heritage, wherever he lives. Joe need not fear. The feds already allow grazing, mineral exploration and, in some instances, homesteading on the lands targeted by the Rebellion. What's at issue is the income from these leases and rights. And Joe need not be angry. The Sagebrushers want BLM land back, not national parks or monuments or even, really, any land that clearly merits a wilderness designation.

Experience tells me that state governments, being smaller, are more quickly responsive; there are a few less layers of bureaucracy to bore through. Recreationists, thus, need cut less red tape to do their thing, accomplish their various and sometimes conflicting goals, whether their interest be backpacking or dirt biking. All of us, I believe, will be a step closer to *our* land if the Sagebrushers prevail.

More immediately, in preparation for coexistence, we might condition ourselves to compromise. I like an example in the Garner Valley near where I live. There are several large ranches there, grazing herds on both private, and leased government lands. All but one of the ranchers have talked the Forest Service into allowing them locked gates, even though the roads thus closed were originally built and are now maintained by public monies. And all but one experience constant problems with forced entry. The rancher that doesn't hangs an hospitably worded sign on his *unlocked* gate. It says, "Please close this gate behind you." The owner can't remember when he last lost a cow.

It can work, and I see the role of *Desert Magazine* as helping it to work. Public lands are for everyone in trust. Let everyone use them, each in his own way, the only rule being to do unto others as you would have done unto yourself. And I'd rather lobby for that ancient admonition at the state than the federal level. Maybe, even, we can someday live within its meaning without any supervision (or editorials) whatever.

Don Mac Donald

There is GOLD in them 'thar hills!



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being found
with the
help of . . .

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Unsolved Mystery

Allow me to introduce myself as the brother of Everett Ruess, the artist, writer and poet who disappeared late in 1934 while exploring the canyon country along the Colorado River east of Escalante, Utah. Hugh Lacy serialized Everett's tragic story five years later in *Desert Magazine* and, subsequently, it appeared in book form. I would still like to see the mystery of my brother's disappearance solved, just as, I imagine, would friends and relatives of people like Judge Crater, Jimmy Hoffa and Amelia Earhart.

From the record and from family papers I've seen, it seems most likely that Everett met with foul play on the part of some cattle rustlers I heard were encamped above the end of Davis Gulch, the same place where they found his burros in a sort of natural corral, but the Utah authorities never pursued the investigation. I've not even been told the names of the suspected rustlers, though I'm sure some people in Escalante and neighboring towns had this information. My family's hope was that on his deathbed at least one of the rustlers would tell, but this does not seem to have happened.

Since our parents are dead, it would mean more to me than to anyone else in the world if you still have copies in your files of all the nice letters people wrote about Everett and could send me duplicates of these. Nationally known lecturer Edward Howard Griggs called my brother "Thoreau to the Nth power," which I think was quite a compliment. This appeared in a contemporary edition of *Who's Who in America*.

Waldo Ruess
Santa Barbara, Calif.

All back issues of *Desert Magazine* since Vol. 1, No. 1 (November, 1937) are available, perhaps most conveniently, on microfilm at larger libraries or in bound form at our office. Letters not printed were not kept. If any reader can shed further light on Everett's still unexplained disappearance, we will forward the information in strict confidence to Waldo Ruess.

More "Resting Eggs"

Choral Pepper's account of the mysterious appearance of jellyfish in Lake Mead (*Desert*, March 1981) reminded me of an out-of-place marine creature I came across back on the family farm in southwestern Oklahoma during the late 1930s. Despite the usual drought each summer, we could nearly always count on at least one toad-strangling, gully-washing rain in the early spring. Standing water would last in the fields two or three weeks, long enough for numerous forms of life to appear and multiply, including toads, tadpoles, crayfish and countless water bugs.

I'd avidly probe these murky mudholes to add to the living collection I kept in boxes and glass jars around the house, but one year, along with the normal haul of crayfish and sundry water creatures, I came up with a strange looking animal I had never seen before. With a light brown, leathery, horseshoe-shaped carapace about the size of a half-dollar, wriggling pincer-like legs and a long, straight-pointed tail, it looked rather menacing. As well as I can recall, it lasted about a week or so in captivity before expiring.

Many years later, in a book on paleontology, I came across a picture of it. The curious creature was *Xiphosura* (or *Limulus*) *polyphemus*, commonly known as the king or horseshoe crab. Since its normal habitat is the Atlantic seaboard and parts of the Pacific, how did it, or its eggs, end up in a mud puddle in the middle of a farm in Oklahoma, a thousand miles from the nearest ocean?

Tony B. Raines
Oklahoma City, Okla.

After reading Choral Pepper's fine article, "Desert Jellyfish," I sat back in my chair and mused how like flying saucers these creatures seem to be. For instance:

1. "When triggered they emit a poison powerful enough to stun."
2. "Their progress . . . is achieved as a result of rhythmic pulsations or . . . contractions."
3. They "move up and down as fast as a Yo-yo."

4. They are circular and have a "bell top."

5. You can't catch them.

6. They "disappear as suddenly as they first appeared."

There are probably more patterns and parallels. If we would study these creatures a little more thoroughly, from a mechanical, asexual viewpoint, perhaps this country could then come up with its own UFOs!

Adora Rickard
Ojai, Calif.

Let There Be People

I have enjoyed your magazine for 10 years now and I was especially pleased with your February (1981) "Death Valley" issue. That area has more soul than any city, and I agree that the National Park Service has closed off the greatest intrigue by not allowing a few people to live there. Why not give a few prospectors permits to wander with their burros around the valley? After all, if they lived life as it was lived there in the past and didn't use modern machines, they would be a welcome addition to the natural setting.

Phil Herbert
Salt Lake City, Utah

Explosion Recalled

Your article on Jerome, Arizona (*Desert*, March 1981) was quite interesting to me, especially mention of 250 tons of dynamite exploding in 1925. I remember it occurred in November, around 4:15 p.m. I was sawing wood in our backyard at Cottonwood when I heard the explosion and felt the shock, and having a clear view of Jerome four or five airline miles away, I saw a dust cloud rise. I did not see anything in the paper concerning the explosion, and I didn't hear of any damage to homes or windows in Jerome. Much later, though, I was told that two (or four) railroad box cars loaded with dynamite had exploded on a siding, and that it was not reported as such to avoid investigation of safety law violations. There were no unions around at the time, these having been broken up

during World War I.
K.E. Bloom
Oakland, Calif.

Offending Trash

My wife and I, ardent rockhounds who believe in keeping the desert beautiful, were utterly disgusted and sickened recently while searching for agate and jasper at the Early Man Site east of Barstow, California. The Mineola Road turnoff from I-15 takes you through a disposal area before you get to the site, which I know is a federal government project. As to the dump, I don't know if it's city or county, but I do know that it's the filthiest testament to mankind we have ever seen. Trash, papers, unknown and unidentifiable filth, all blow to the four winds over a vast area of beautiful land, and no effort to control this is evident. It is a disgrace! The agency responsible for this should be made to clean it up!

Fred Barnes
Santa Ana, Calif.

He Quits

After five years of searching for Pegleg's gold, I quit. The price of gasoline and the first twinge of failing leg muscles (I'm 84) force me to give up. Between the BLM and the military, most of the land has been confiscated. The parks are artificial. We are told where to walk, ride, camp and play. The straight jacket does not fit my shoulders, but I've enjoyed every hour of the search.

Don Springer
Yucaipa, Calif.

Water Rights

Your editorial in February, 1981 *Desert* about the water problem at Mono Lake was excellent. You've written with insight and clarity on a complex subject that was always difficult for me to approach when I was a Mono County resident. I've referred this issue to magazines and newspapers in the county.

Buddy Noonan
Sierra Vista, Ariz.

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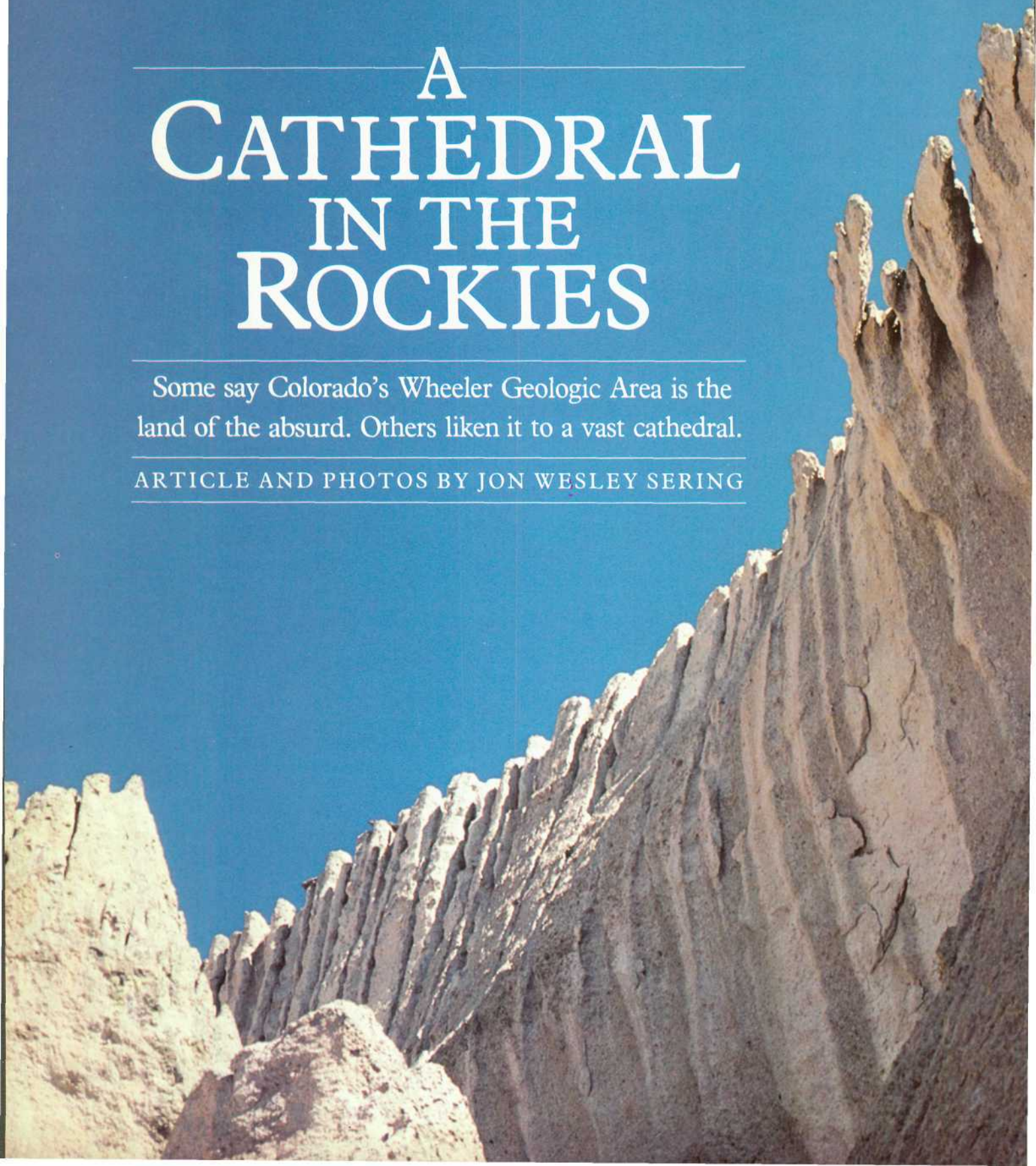
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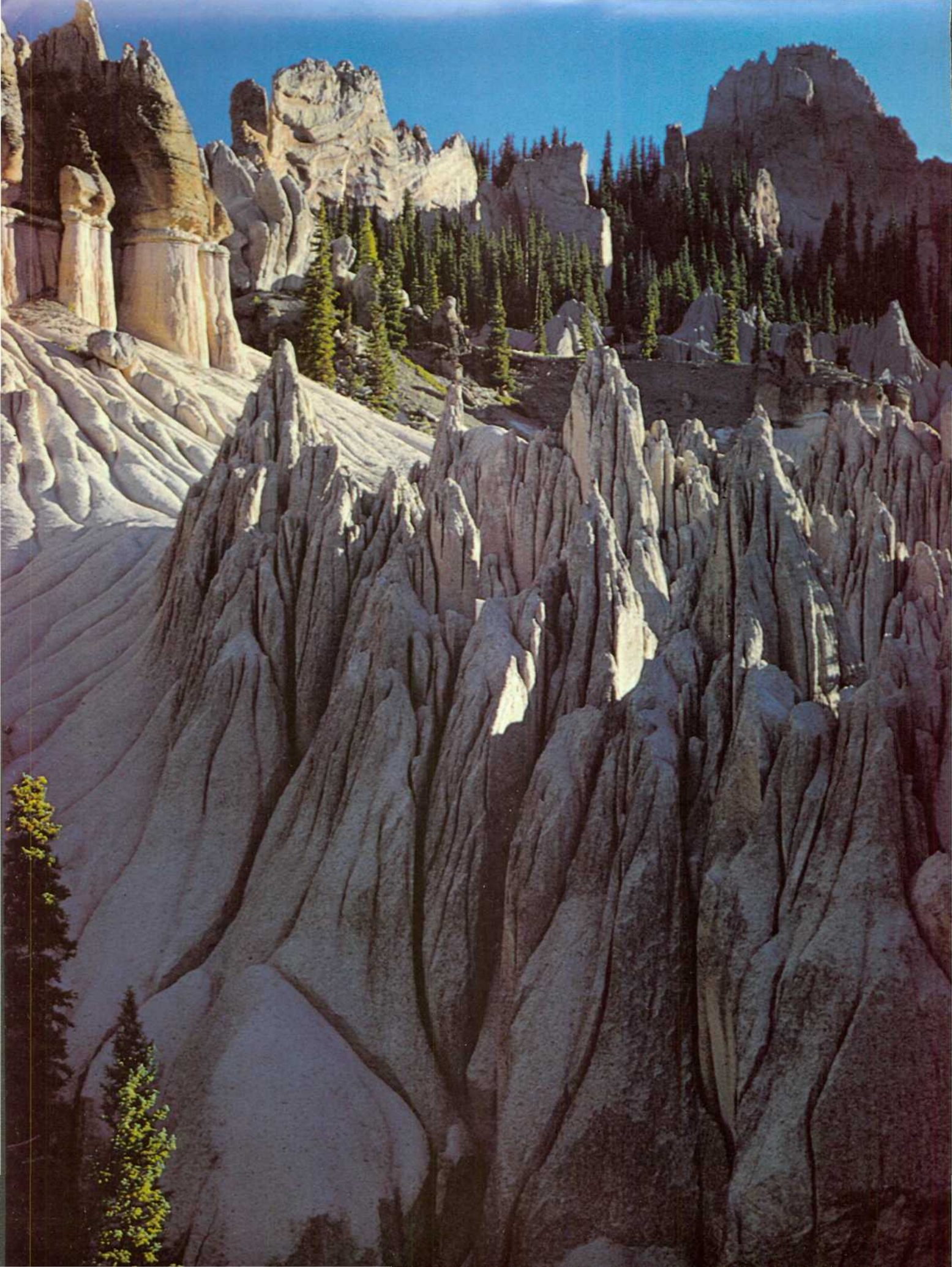
Some say Colorado's Wheeler Geologic Area is the land of the absurd. Others liken it to a vast cathedral.

ARTICLE AND PHOTOS BY JON WESLEY SERING



*Wheeler is a land of contrast,
sawtoothed formations jostling
furrowed erosions in the soft rock
(insert). Here, adults lose all
inhibitions and become children
once again.*





"There before us, enhanced by the rays of the setting sun, lay the vista of what seemed to us an enchanted city. Spires and domes, castles and cathedrals, mosques and temples, with their fluted columns and wonderfully carved friezes, were arrayed in a confusing panorama of form and color."

THUS WROTE Frank Spencer, forest supervisor for the Rio Grande National Forest, after his journey in the summer of 1908 when he first viewed the Wheeler Geologic Area near the silver mining community of Creede, Colorado.

No other landscape in the Colorado Rocky Mountains is more mystical or bizarre, nor draws a greater emotional response from the infrequent visitor. It is a desert-like landscape, resembling Bryce Canyon, yet is located near timberline one-half mile from the Continental Divide. It is a land of immense beauty and unique human history.

Wheeler Geologic Area is a badlands formation composed of tuff, deposited from nearby volcanic activity. The debris varies from minute dust particles to large, three-foot blocks. Being soft, unconsolidated and uncompacted, erosion by rainfall and wind has created fantastic features of spires and pinnacles in the highly colorful pastel shades of tuff.

The geologic history is far more active than the area's human history. There is no recorded "first" discovery of the geologic formations prior to Frank Spencer's trip in 1908. Previously, rumors had been spread by sheepherders, miners, trappers and hunters of an eerie landscape known as the "Sand Stones." Long before the white man's arrival, it is probable that the Ute Indians knew of its existence from summer hunting trips into the high mountain country.

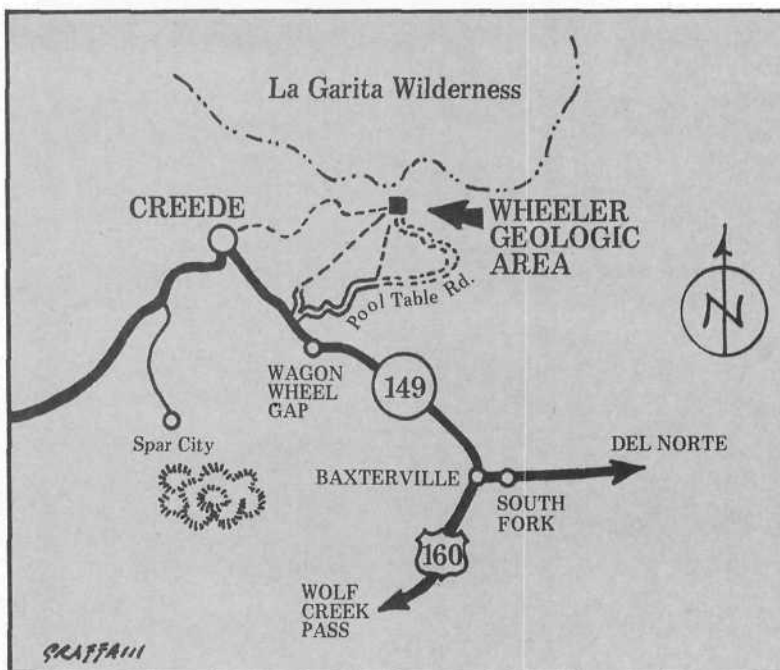
Explorer John Charles Fremont, the "Pathfinder," and his party were in the vicinity of the area in the winter of 1848-1849. Guided by the famed 62-year-old Taos, New Mexico mountain man, "Old Bill" Williams, the Fremont party attempted to cross the Rockies via the headwaters of the Rio Grande. Williams argued with Fremont to turn south and travel through easier country and warmer weather, but his suggestion was ignored. In mid-December, Fremont's party was caught high in the mountains with temperatures 20 degrees below zero.

Ten feet of snow lay on the ground, driven by howling winds. The party became confused and disoriented, and soon it was every man for himself. Before the ordeal had ended, 10 men were dead and more than 100 pack animals were lost.

Williams returned the following spring to collect some provisions Fremont had left behind, but he was never seen again, so it is presumed that Ute arrows brought an end to the colorful and far-traveled mountain man's life. Then, approximately 25 years later, Lieutenant George Montague Wheeler led a War Department survey party across southern Colorado. There is no record or indication that either Wheeler or any of his men ever observed the formations.

In 1906, Congress passed the Antiquities Act, which allowed the President, by his authority, to designate historic landmarks, prehistoric structures and government administered lands which contain historic or scientific values as National Monuments. Spencer's enthusiasm for the area led to a report and recommendation for its establishment as a National Monument. The forest supervisor traveled in person to Washington, D.C. and met with then chief forester of the U.S. Forest Service, Gifford Pinchot. Wheeler's name was attached to the geologic area by default. Originally, Fremont's name was proposed; however, it was decided that enough prominent natural objects had already been

Early morning is the time to photograph Wheeler (left); the rising sun adds its own illusions. Map (below) shows the four access routes to the area.



WHO NEEDS A CURE for CANCER?

Certainly not the chemotherapists, radiologists, surgeons, hospitals nor the American Cancer Society. It would kill their golden goose and cost them billions of dollars.

- **Is there a preventive or cure available?**

Of course, and it is presently used in Germany.

- **Have American scientists found a preventive?**

Yes, when they injected female mice with a cancer causing substance (carcinogen) all the mice got breast cancer. Adding this preventive and injecting female mice with the same carcinogen NOT A SINGLE MOUSE GOT CANCER.

- **Is quitting smoking the answer?**

In the 1979 Surgeon General's report you find this quote . . . "smokers have fewer restrictive activity days and fewer chronic conditions than former smokers.

- **Hasn't the government stated that smoking is dangerous?**

Yes, but other government studies have shown that STOPPING smoking . . . may actually increase your chances of cancer, heart disease, kidney stones, high blood pressure and dozens of other illnesses.

- **Can some people be getting this element without knowing it?**

Yes, if they are lucky enough to live in the right place. That's why in Japan breast cancer is only 15% of what it is in America; why Rapid City, So. Dakota has half the lung cancer rate of Lima, Ohio.

- **Are there places where cancer and heart disease are rare?**

Yes, and these people live to well over a hundred years old.

- **Have researchers tried this element on incubating cancer cells?**

Yes, and it completely stopped cancer cell development.

- **Does this element have any side effects?**

The side effects are only positive. This element is needed by the heart to strengthen the heart muscle. Fertility is also influenced by this element. It stimulates the motility of sperm.

- **Wasn't there a recent story from China on this element?**

Yes, doctors there report a dramatic decline in certain forms of congestive heart disease.

- **Is this preventive available now?**

Yes, it can be obtained legally without a prescription.

- **Why call a book like this "The Joy of Smoking"?**

Because the author was given six months to live — 14 YEARS AGO. And he has been smoking two packs a day for the last 12 years.

"Perhaps the real sleeper in this book is a method to reduce one's smoking from 40 cigarettes a day to 4 . . . without pills, will power or expensive clinics."

Herald American Book Review

named in honor of the Pathfinder.

In 1908, within three months of the report, President Theodore Roosevelt designated the area as the Wheeler National Monument, to preserve volcanic formations which "are of unusual scientific interest as illustrating erratic erosion."

It seems no one knew under which government agency the monument could best be managed. In 1933, the Wheeler area was transferred from the Forest Service to the National Park Service along with other national monuments in the national forest system. Then, after 17 short years of administration, Wheeler National Monu-

*No one
knew under which
government agency the
monument could best be
managed.*

ment was transferred back to the Forest Service because of poor access and the isolated nature of the area in relation to other park service areas.

Originally 300 acres in size, the Forest Service expanded the protected area to 640 acres and withdrew it from mineral entry and purchase. Then, in 1969, the Forest Service prohibited motorized vehicles within the area and requested that the formations be reclassified as the Wheeler Geologic Area.

The political future of the area continues to be as unpredictable and volatile as was the volcanic action which created the geologic oddities. In December, 1980, Congress passed the Colorado Wilderness Bill, which states that the Wheeler Geologic Area and contiguous lands will be studied and recommended by 1983 for possible National Park, National Monument or National Recreation Area designation. In addition, during the last decade, numerous proposals have recommended that the area be included within the existing La Garita Wilderness Area, whose present boundary lies along the Continental Divide overlooking the Wheeler formations near Half Moon Pass.

To visit the Wheeler Geologic Area, there are four primary routes which of-

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fer a wide variety of experiences. In the early 1900s, a 14-mile foot and horse trail was constructed from Creede to the area. At the terminus of this, one will find a cabin shelter unit built for campers by the Forest Service nearly 75 years ago.


The most used access route begins near Wagon Wheel Gap. From State Highway 149, turn off on Pool Table Road (maintained gravel) to the site of Hansen Mill, once a logging mill. Just beyond the mill site is a road fork. The left fork is a seven-mile foot and horse trail and the right fork is a 14-mile jeep road, both to the Geologic Area. The best way to describe the roughness of

*No other
landscape in the
Colorado Rocky Mountains
is more mystical
or bizarre.*

the jeep road is that it takes almost as long to drive as it takes the hiker on the seven-mile trail along East Bellows Creek.

One other trail, a highly scenic one, is the West Bellows Creek Trail. The trail begins near Highway 149 at the Phipps Ranch. Regardless of your route, it is advisable to contact the ranger station in Creede for trail conditions, regulations, information and maps before your trip.

A visit to the Wheeler Geologic Area is like a visit to the land of the absurd. Adults become children as they scamper over eroded volcanic formations or give names to rock shapes in this enchanted landscape, names such as "Dante's Lost Souls," "The Phantom Ship," "The Chicken Roosts" or "The Ghosts."

Arthur Carhardt, a landscape architect for the Forest Service, wrote of the area in 1924: "A description of the shapes assumed by the up-thrust rock might cover many pages. Every step in any part of the monument seems to bring several new ones into view. An imaginative person can see in these eroded objects the shapes of almost any animate creature — and not a few of fanciful beasts such as live only in dreams or in gnomeland." 

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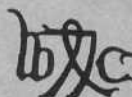
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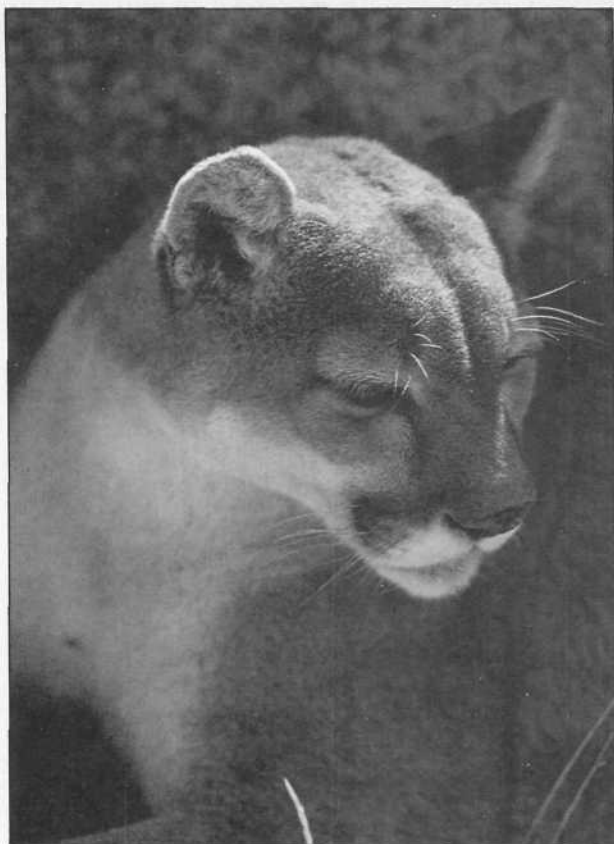


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The Mountain Lion

The elusive king of cats still roams America's wilderness.

by Karen Sausman
Photographs by David Sumner

ONE OF THE first animals I cared for after joining the staff of the Lincoln Park Zoo in Chicago, Illinois, was a young, exquisitely beautiful mountain lion kitten named Lucky. At several months old, she weighed 25 pounds and could leap, spring and climb with tremendous agility. She thought nothing of climbing right up our legs and onto our shoulders, a little disconcerting when her sharp claws poked through our clothes, even though she was reasonably gentle and never purposely attempted to hurt us. I would often spend time after working hours "talking" with her. Well, almost! One of the little known facts about mountain lions is that they whistle and chirp like a bird when they are excited.

Lucky was fortunate to have a permanent home in a zoo. Each year, many people foolishly purchase young mountain lion kittens for pets. They do not, however, make very good pets. As

The fine-textured fur of an adult lion (above) contrasts with the fluffy coat of a six-month-old cub (opposite page).

with all wild animals, the cute antics of the young kitten soon turn into the agile and powerful roughhousing of a 100-pound cat. If suddenly frightened, even in play, they can inflict severe wounds. Each year zoos throughout the country are inundated with phone calls from people trying to give them "tame" mountain lions, many of whom have been defanged and declawed by their owners in a misguided effort to domesticate them. Such cats are even harder to place in zoological parks, and many wind up being destroyed.

The mountain lion (*Felis concolor*) is the largest wild cat in the United States, and the second largest in the New World. Only the jaguar of Central and South America is larger. At one time jaguars were also found in southern Texas and Arizona; there are still occasional reports of these animals crossing the Rio Grande.

Not too long ago, mountain lions roamed across all of North and South America. Like all of our large predators, they eventually came into conflict with settlers and the livestock industry. People were fearful of the large cats, of their size and power, and unwilling to put up with the depreda-

tion of their livestock. So, slowly but surely, wherever man has crossed paths with the mountain lion, the mountain lion has been exterminated. It has been totally eliminated from the east and midwestern portions of our country, leaving a small population of mountain lions still to be found in southern Florida and in the west.

With such a broad range, it is not surprising that the mountain lion earned a wide variety of common names, among them cougar, puma, panther and catamount. Only in the west is the name mountain lion appropriate, for here they are primarily creatures of the mountain ranges. In Florida, these animals are often called panthers.

Regardless of what you call mountain lions, they are fascinating animals. Their power and strength are legendary. Mountain lions are medium sized cats; total body length including the tail is somewhere in the vicinity of seven to eight feet. There is a great variety in the physical size and color of the cats. Adult females have been found weighing as little as 75 pounds, whereas males can weigh from 80 to 200 pounds. From the scanty statistics





This three-month-old cub could not have been very far from its mother when this photograph was taken.

available, it would seem that mountain lions in California are smaller than those in most of the other western states. Color ranges from tawny beige to gray, with a brown tip on the tail and on the back of the ears. Within the same mountain range you can find lions of a variety of colors.

Without question, the favorite prey of the mountain lion is deer. Anywhere there is a good, stable population of deer, there will most likely be mountain lions. They are said to kill an average of one deer a week, supplementing this diet with small animals. Porcupines seem to be a delicacy. They manage to overpower these prickly prey, turning them upside down to consume everything but the pelt and quills. Mountain lions occasionally hunt during the daylight hours, but are primarily nocturnal. Deer are often stalked and pounced upon from trees or ledges. Most of the time, the impact alone will kill. After eating its fill, the cat covers the remains and often returns a few days later to eat again. Since it prefers fresh meat, whatever is left after the second feeding is fair game for scavengers such as coyotes, foxes, ravens and vultures.

Besides their natural prey, mountain lions may take livestock that happens to be within their territory. They can overpower horses, calves and sheep. The killing of livestock led many western states to put bounties on the lions at the turn of the century, but since the early 1960s, most states have substituted depredation permits for bounties and now treat the mountain lions as game animals, which means

they are subject to being hunted under permit during special seasons with a bag limit. In Texas, however, the mountain lion is still considered vermin.


In California, the mountain lion became a protected game animal in 1963. In 1971, Assembly Bill 660 changed its status to a protected non-game animal and established a four-year moratorium on the taking of mountain lions. The legislature has since extended the moratorium to January 1, 1983. For the period of the moratorium, the California Department of Fish and Game was directed to ascertain the number of mountain lions in the state and to determine the best means of managing species.

The first phase of the mountain lion study was a statewide survey begun in June, 1971 and concluded two years later. The second phase involved research on specific lion populations in two areas of the state. The first area was 175 square miles of the coast range in Monterey County and the second area was in the southern Sierra Nevada range, a 130-square-mile area of Tulare and Kern counties. Information on lion movement, population dynamics and social structure was gathered. The lions were treed with dogs and restrained temporarily with drugs. Measurements were recorded and the cats were equipped with radio transmitting collars before they were released so that their movements could be followed with receivers.

The Department of Fish and Game estimates the mountain lion population in California to be approximately 2,400

animals. The greatest number of these are concentrated in the coastal ranges from Mendocino to Del Norte counties, the southern Sierra Nevada range, in Fresno and Tulare counties and in the coastal ranges from Monterey to Ventura counties. Mountain lions were also found in most of the forest and brushland areas of the state where there were deer populations. The Department of Fish and Game feels that at this time no areas of the state appear to have drastically declining mountain lion populations. Low-density, reproducing populations exist in various portions of Riverside and San Bernardino counties. Other western states report about the same thing, and there is generally a feeling that mountain lions are not currently threatened with extinction.

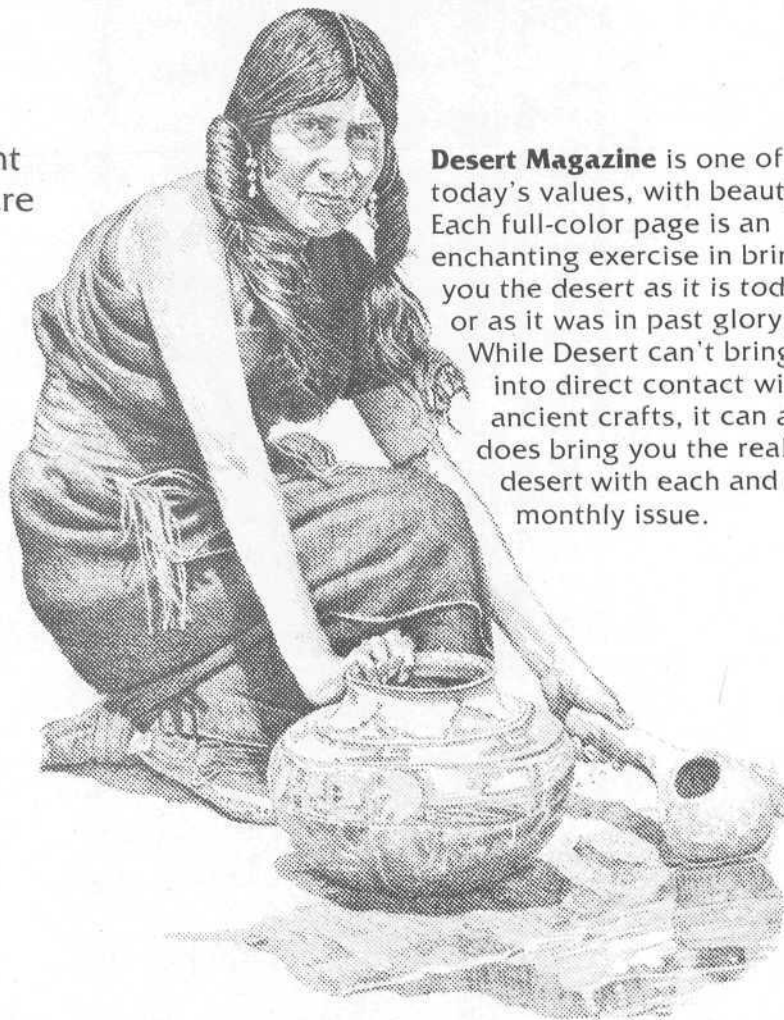
Thus, despite years of persecution by man, mountain lions do continue to roam in the wilder portions of the west and deep in southern Florida. They essentially are loners, hunting by themselves, males and females coming together only during breeding periods. A female often hunts with her cubs, who may number from one to six and may be born in any month of the year. The den may be under a rock crevice or beneath a fallen tree. The gestation period is 88 to 97 days. The cubs are born blind and helpless. Their eyes do not open for two weeks. Their spotted color patterns act as a camouflage, but by the time they are yearlings the spots have disappeared. The young lions may accompany their mother for a year or 18 months before striking out to establish their own territories.

The sight of a mountain lion is an electrifying experience. Although people are afraid they will encounter one when hiking, cats are usually secretive and not particularly interested in hunting man. However, they have been known to follow people out of curiosity. Most of us could spend a lifetime hiking in the wilderness and never come across these stealthy predators. But just knowing that these fascinating cats still share our wild areas, continuing to roam over hundreds of square miles searching for prey, and raising their young, makes any wilderness trip a more complete experience. 

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SANGUINEZ

Baja's Prison of Hope

by Mary Eileen Twyman

THE CONCH'S wail wafted over Mulege and slowly settled into the evening's shadows, which were beginning to stretch leisurely across the dusty roadways.

Pablo Murillo, playing seal in the Rio Mulege, trying to swim with as little limb movement and ripple as possible, laughed at his efforts and broke into firm strokes, reaching the bank in seconds. The eerie sound was just fading as he walked up the bank, tossing his blue-black hair out of his eyes with a quick movement that arched a crystal spray against the scattered rays of sunlight still piercing through dense growth to touch the earth.

Already dry from the blasting desert heat, he pulled on his trousers. He started walking while carelessly stuff-

The gates (opposite page) were never locked during the day, which was why they called Sanguinez "the Prison of Hope." The structure (left) is still in excellent condition.

ing a corner of his shirt in the back pocket, leaving the rest to hang flagging behind him as his long strides turned him up hill. He felt pretty darn good.

He looked up toward his destination, the imposing building situated on the hill's highest point—Sanguinez Prison. His growing sense of well-being made it hard for even him to believe he was a prisoner. In fact, today, that jolt of amazement made him smile as he thought about the pesos nestled deep in his pocket and his cache of many more buried in his cell.

His thoughts turned to that wary-eyed little boy that was himself, born and raised in a grim Baja California village. It seemed his family was always scraping and scratching to survive, never sure, once one sparse meal was finished, where the next one would come from. That boy, that family seemed so far away, yet Pablo knew that boy and that family were the very basis of his firm determination to be the best he could be, for himself and mostly for them.

He had become an excellent thief, and the relief his efforts brought to his unquestioning family were reward enough to spur him on—until the night when, cornered and threatened with capture, he killed a man. With a harsh effort of will, he headed off this downward thrust of his thoughts. The padre had assured him he was forgiven, that the rest of his life was not meant to be spent mired and trapped in guilt.

Pablo reached the entrance of the stockade, but before he walked in he let his eyes roam over Mulege, and his

thoughts soared with his gaze. Growing up with nothing but burning sand under his feet and as far as he could see in all directions, this encompassing view of Mulege's thick green vegetation and freely flowing water never failed to refresh his spirit, even more so than his daily swim in the Rio Mulege refreshed his body.

When he was a young boy, Pablo would sit at the window, his mother's homemade curtains fluttering around him in the warm breeze, and look past the lean cow and scrawny chickens, his brothers and sisters playing in the dirt yard, and try to imagine what lay beyond the jagged mountains rising from the distant desert floor. When he first came to Sanguinez, knotted in despair and homesickness, he had taken a piece of charcoal from the edge of the fire and drawn a crude window on the wall of his cell. He had even drawn the curtains to look like they were being lifted by a gentle breeze. At night when he lay on his bunk, his mind's eye projecting the scene of his home on his sketched window, the flickering firelight indeed made the charcoaled curtains appear to flutter.

One of Pablo's boyhood friends had come to Mulege. He had talked with him this very afternoon. Juan had brought him news of his family, news that had lifted and eased the tremendous weight of worry that always seemed jammed somewhere between his shoulders, bound there by invisible chains, relentless in their savage, constricting grip around his back and across his chest.

Mamá and Papá were well and lovingly cared for by his brothers and sisters. It was hard for him to perceive all of his brothers and sisters but the youngest being married, even more astonishing to hear that he was an uncle, several times. They were all still poor, very poor.

The plan, his plan, that always lay dormant somewhere at the base of his being, nourishing his dogged determination, leapt forward in his thoughts with startling clarity. His plan had been conceived the day he had talked with the padre, and had realized he no longer had to labor under his guilt. On that day, he had realized that Sanguinez Prison was not a house of punishment for him, but a new beginning.

He had jobs, working wherever the townspeople needed him. And, because of his bold way of wading into and furiously diminishing whatever work was set before him, it was Pablo

Murillo the townspeople sought out to work in the date and banana groves that flourished in Mulege. The pesos buried in the floor of his cell attested to the many years of hard work behind him.

He would soon be free. In an effort to will his days even more swiftly to that end, he leaned even more ferociously into the body-wrenching toil that brought nights of deep, satisfied sleep.

It wouldn't be long before his plan would be reality. When he was free, he



MARY EILEEN TWYMAN

Most of the graffiti in the cells is of modern, gringo origin.

would return home. Then, he would bring Mamá and Papá to Mulege. He would buy a farm. Maybe his brothers and sisters would come too. Mulege had plenty of work.

WHEN COLONEL Augustin Sanguinez was governor of Baja California, he built this unique prison on a hill overlooking Mulege in 1906, naming it after himself.

Mulege, being an oasis, is a virtual garden. Because its productivity far outstripped the ability of its residents to keep up with it, it didn't take long for the people of Mulege to tap the wealth of manpower housed in the cells behind the brick and plaster, guard-towered stockade. It was out of Mulege's need that a unique honor system evolved for the inmates of Sanguinez.

There were a few incorrigibles who were not included in this program, but during the 59 years of its operation, most of the prisoners merely slept at

the prison in open cells, eating meals prepared by the wife of one of them. Their days were spent working, wherever needed, in Mulege. They were even paid for their labor.

The townspeople had no fear at all of the prisoners. On a typical workday, the only way to tell the prisoners from the free was that at 6:00 p.m., a guard would climb up to one of the stockade's corner watchtowers and blow a conch shell, and various men could be seen breaking away and filing up the hill toward the prison.

These men were so trusted and accepted by the local people that at the completion of their terms, many of them stayed in Mulege, marrying and raising families. Even today the identities of these ex-prisoners and their descendants are intensely yet politely protected from outsiders, "for the sake of their families."

In 1965, its residents reduced to only three, Sanguinez Prison was closed. Pigeons thrive there now, nesting in the 53 cells. Jose Luis, an ex-policeman, lives there too, in what was once the kitchen. He has made Sanguinez his home "because he likes it" (no rent). He also serves as a "guard" for the occasional drunk, *gringo* as well as Mexican, that may be in need of a place to sleep it off.

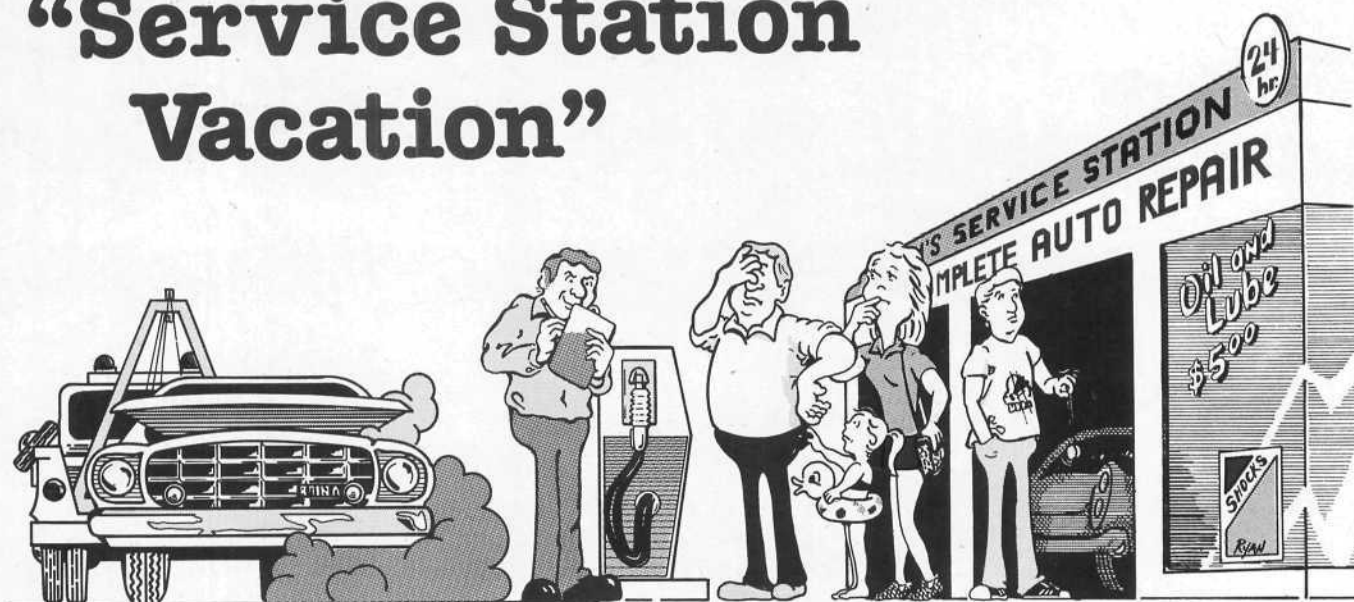
The 53 back-to-back cells form a square around an open courtyard within the stockade. In the center of this courtyard is a container which was used for water. A roaring fire was also lit here every night to fight off the chill. On the left wall, looking out into the courtyard, is someone's sketch of Our Lady of Guadalupe.

Exploration of the cells reveals a lot of graffiti which has accumulated over the last fifteen years, but closer inspection reveals old faded drawings, names of family members and dates—segments and traces, glimpses into a multi-faceted diary ripped from the pages of many lives.

All of the prisoners at Sanguinez Prison were men. A very few of them were hardened criminals, and another small minority of them were mentally ill. There seems to have been only one known escape attempt. A man scaled and leaped from the wall of the stockade, and was shot and killed by one of the guards.

Why escape? The rehabilitation program unwittingly proposed by the people of Mulege was a way of life better than any the prisoners had known. It offered hope, and a future, as the priest had promised, free of guilt. **Z**

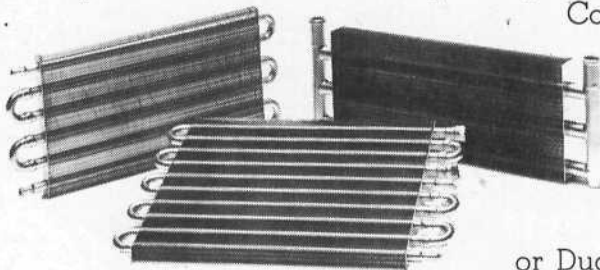
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Why Owens Lake is Red

One of nature's most remarkable biological phenomena is the pink and red coloration of salt lakes and playas. Here is the explanation, known heretofore only to a handful of scientists.

IF YOU HAVE ever driven north on U.S. Highway 395 along the eastern side of the Sierra Nevada in late summer, you may have noticed the vast, pinkish-red, crusted surface of Owens Lake glowing in the desert sun. Near the abandoned Columbia-Southern soda plant at Bartlett, along the northwestern end of the lake, solar evaporation ponds may be colored a brilliant red. Pink salt lakes and playas, and the bright red evaporation ponds of salt recovery plants along their shores, are among nature's most remarkable biological phenomena, occurring in arid regions throughout the world. Similar and related biological phenomena are responsible for the coloration of hot springs, other bodies of water, and snow in the high mountain ranges.

Owens Lake is actually a playa, an intermittent dry lake that may contain standing water during wet years, but even when the lake appears dry, a layer of brine occurs beneath the salty crust. It is fed by the Owens River and all the tributaries that drain the snow-covered Sierra Nevada. Before the river was diverted into the Los Angeles Aqueduct in 1913, Owens was a large, blue, salt lake 30 feet deep and covering 100 square miles. Several thousand years ago, the lake was more than 200 feet deep and nearly twice as large.

Remnants of ancient beaches are still preserved at several places around the lake.

Owens Lake, in fact, had been gradually drying up for thousands of years, and was already saline when the Owens River was diverted to supply Los Angeles with water. Brine fly pupae (*Ephydra*), common insects of saline ponds and lakes, were an important food in the diet of local Paiute Indians. The pupae, which look like grains of rice, occur in enormous numbers and can still be found around the shoreline where there is standing water. They can also be found by the thousands, embedded in the salty crust.

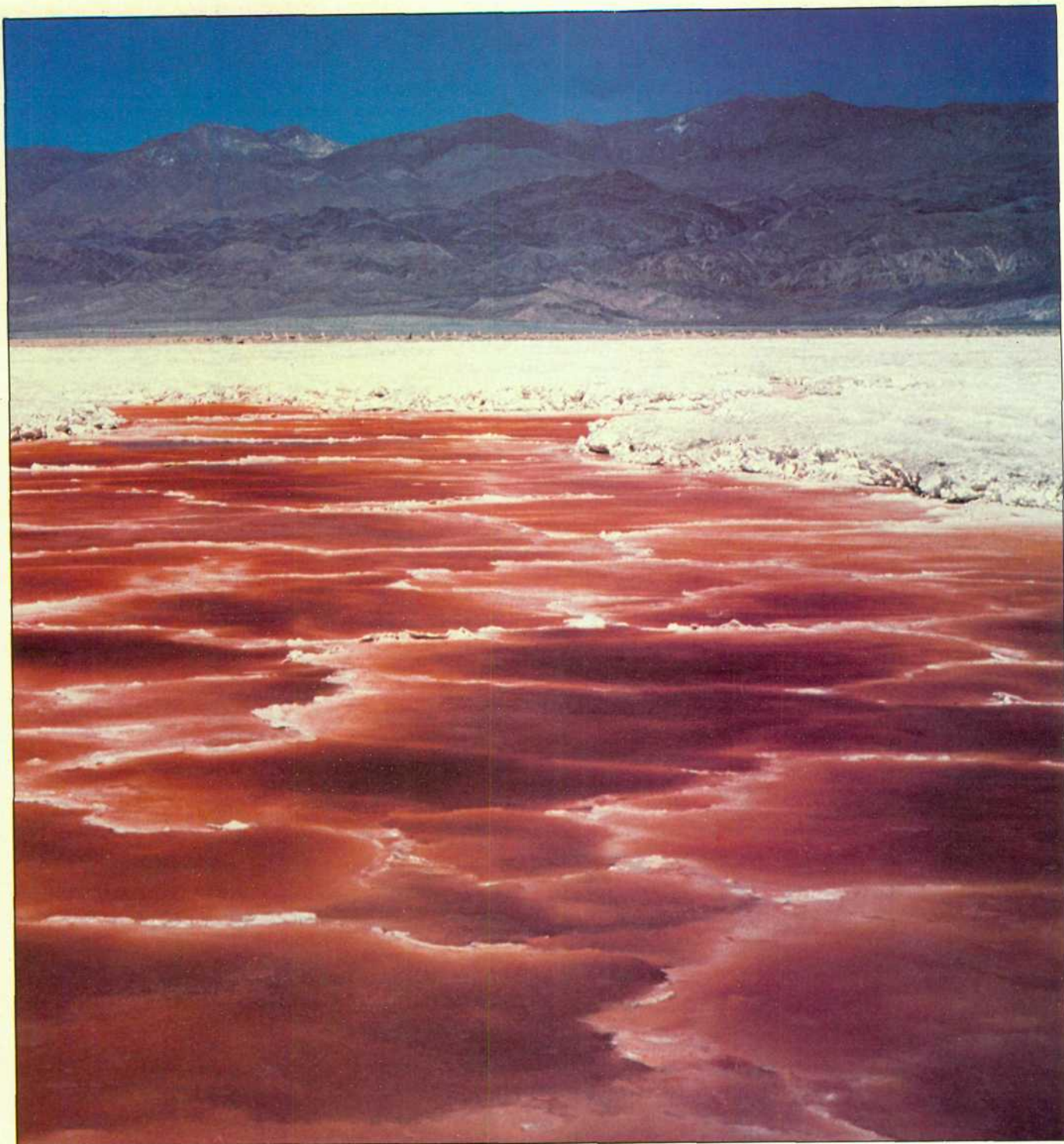
The coloration of Owens Lake is caused by astronomical numbers of microscopic organisms, which can be conveniently classified into two major groups, algae and bacteria. Algae and bacteria include thousands of different species, but only a few kinds are able to tolerate the extreme salinity of playas such as Owens Lake. The group of organisms primarily responsible for the red coloration of the salt crust and brine pools are the halophilic (salt-loving) bacteria.

The amount of salt in a lake or sea is often expressed as a percent, and refers to the total grams of dissolved salts in 100 milliliters of water. The total percent of salinity includes all salts pres-

ent, such as sulfates, chlorides, carbonates, magnesium, calcium and sodium; however, the most abundant salt in the brine where halophilic algae and bacteria thrive is ordinary table salt, or sodium chloride. The percent of salinity may vary in a salt lake or playa, depending upon where the water is tested, such as close to freshwater springs or a river inlet. For example, in the northern arm of the Great Salt Lake, the total dissolved salt content is more than 30 percent, whereas in the southern arm (where the rivers enter) the salt concentration ranges from 12 to 20 percent.

Unlike most living things, the halophilic bacteria thrive in saline lakes with salt concentrations of 15 to 30 percent. This is roughly four to nine times the salinity of sea water (3.5 percent). Their optimum growth condition is 20-30 percent salinity. They can even live in saturated salt and remain alive in salt crystals for years. In fact, they cannot survive if the salt concentration drops much below 12 percent. Very few life forms on earth are known to be adapted to this extreme salinity. The brine ponds of Owens Lake are so alkaline and hot in mid-August that they can actually burn and dehydrate your fingers. In many places, the brine is saturated with sodium chloride (over 30 percent salinity) and salt is precipi-

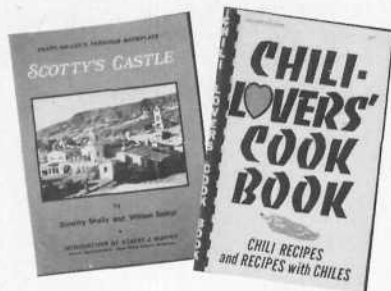
Article and photographs by WAYNE P. ARMSTRONG



The stark Inyo Range glowers over the vivid red brine and salt crust of California's Owens Lake.



A hole chopped through the salt crust reveals the red brine beneath.



20-MULE TEAM DAYS IN DEATH VALLEY by Harold O. Weight. Specialists and critics praise this account of the great borax wagons of the 1880s, the drivers and mules, the trail to Mojave. Story of Borax Smith, Wm. T. Coleman, Death Valley pioneers, Harmony Borax Works. First-hand stories. Includes reprint of Henry G. Hawks' report on Death Valley 1883. Pb., 48 pgs., 33 historic and modern photos, map. 5th ed. \$1.00.

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tating out. So, when you consider the extreme environment of the brine, it is rather easy to narrow the field of possible organisms responsible for the startling coloration.

If samples of the red brine are spun in a high speed centrifuge at 5,000 rpm, the water becomes clear as the red bacterial cells are forced to the bottom under about 3,000 Gs. The bacteria may then be grown in a special nutrient agar containing at least 25 percent sodium chloride, incubated in a warm oven. After several weeks, small reddish colonies of bacteria begin to appear in the culture dishes.

There are two main kinds of extreme salt-loving bacteria, the rod-shaped halobacteria and the spherical halococci. They are extremely small unicellular organisms, visible only under high magnification. To get a rough idea of how small these bacterial cells really are, it would take more than half a million to cover the surface of an ordinary pinhead. A single drop of brine from Owens Lake may contain millions of the minute, rod-shaped *Halo-bacterium*, squirming about with seemingly perpetual motion. They are able to swim about by means of minute, hairlike flagella at their ends. The bacterial cells contain a red carotenoid pigment which, depending upon their concentration, may color the water pink, orange, vermilion, or mauve-red. The red pigment is similar to that found in tomatoes, red peppers, and many colorful flowers and autumn leaves. It has been suggested that the bright red pigments protect the delicate cells from the intense desert sunlight. They are found in salt lakes and brine ponds throughout the world, including the Great Salt Lake and the Dead Sea.

The halophilic bacteria may be a nuisance to industry using evaporation ponds for the production of solar salt. Freshly produced solar salt is often heavily contaminated with these organisms, and they occasionally cause spoilage of fish, sausage casings, meat, vegetables and hides when salt (sodium chloride) has been used in the preservation process. They may also cause an unsightly, pinkish discoloring of pickled foods. The discoloration is known as "pinkeye" in salted fish and "red-heat" in salted hides.

THE EXACT chemical explanation for the extreme salt tolerance of these bacteria, and their need for salinity at least three to four times that of sea water, is very compli-

cated. The cells themselves contain a very high internal salt concentration, about equal to their environment. Otherwise, they would be rapidly dehydrated (plasmolyzed) in the brine. It has also been shown that the highly saline environment is essential for normal enzyme function within the cells, and to maintain the fragile protein coating or "wall" around the delicate cell membrane. In fact, if the salt concentration drops too low, the outer protein "wall" actually dissolves and the inner cell membrane disintegrates, thus destroying the cell.

The salty crust and brine of Owens Lake is sometimes greenish, due to the

*It has been
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the delicate cells from the
intense desert sunlight.*

abundance of another organism called *Dunaliella*. This is a unicellular green alga, much larger than the bacteria, though visible only under high magnification. Each individual oval or pear-shaped cell has two whip-like tails or flagella at its anterior (head) end. The moving flagella propel *Dunaliella* through the water in a spiral motion. Under high magnification, numerous *Dunaliella* can be seen swimming among the gleaming, geometrically-shaped crystals of salts. *Dunaliella* is clearly a green alga because of a distinct, green, cup-shaped chloroplast that occupies most of the cell. In nearby Searles Dry Lake to the southeast, *Dunaliella* and a closely related species, *Stephanoptera*, may be so abundant that they color the salt crust a bright green. Here they thrive in water with 33 percent dissolved salts, and where the salt forms a solid surface crust strong enough to bear the weight of an automobile. In solar evaporation ponds of the large Kerr-McGee Chemical Plant at Trona, *Dunaliella* sometimes forms a thick, green, "pea soup." A single drop of this thick water may contain several thousand individuals of *Dunaliella*.

Under unfavorable conditions, *Dunaliella* produces a red carotenoid pig-

ment similar to that found inside the halophilic bacteria. The red pigment may completely mask the green of its chloroplast, and salt lakes practically anywhere in the world may be colored reddish by *Dunaliella*. For decades, scientists in Russia were puzzled by the pinkish coloration of salt lakes in the hot, lower Volga region, north of the Caspian Sea. The pinkish water was finally attributed to the presence of *Dunaliella salina*, either dying naturally or excreted in the fecal mass of brine shrimp (*Artemia*), which feed exclusively on it. *Dunaliella* in the very saline northern arm of the Great Salt Lake in Utah are brilliant red. There the water is colored red by both the *Dunaliella* and the red halophilic bacteria. Some authorities recognize a red and a green species of *Dunaliella*; however, all the *Dunaliella* I have observed in Searles Lake and Owens Lake were bright green. It appears that the brilliant red coloration of brine in these lakes is caused primarily by bacteria.

The distribution of *Dunaliella* throughout the world in very specialized, highly saline habitats is convincing evidence that its dormant cells are dispersed by the wind in the form of dust clouds. Much to the chagrin of Owens Valley residents, alkali dust clouds are a common sight over Owens Lake. This is also happening to Mono Lake to the north as its main supply streams are diverted to provide Los Angeles with more water.

In addition to red saline lakes, microorganisms are responsible for the coloration of other bodies of water, tree trunks and even rocks. Enormous populations of algae are responsible for the coloration of the Red Sea and for a periodic condition of coastal waters known as the "red tide." Another alga, closely related to *Dunaliella*, thrives and multiplies by the millions in snow banks. The individual cells are bright red, and from a distance the snow actually appears pink. Compacting the snow increases the density of the red cells and heightens the color.

Algal cells also color the trunks of trees velvety green, and the trunks of Monterey cypress on the Monterey Peninsula in California a brilliant orange. The colorful crusted growth on rocks and boulders throughout the west is caused by an intimate association of algae and fungi known as lichen. Several different kinds of algae and fungi are responsible for the many colors of lichen, including black, red, orange, green, yellow and chartreuse. For years, people have wondered about



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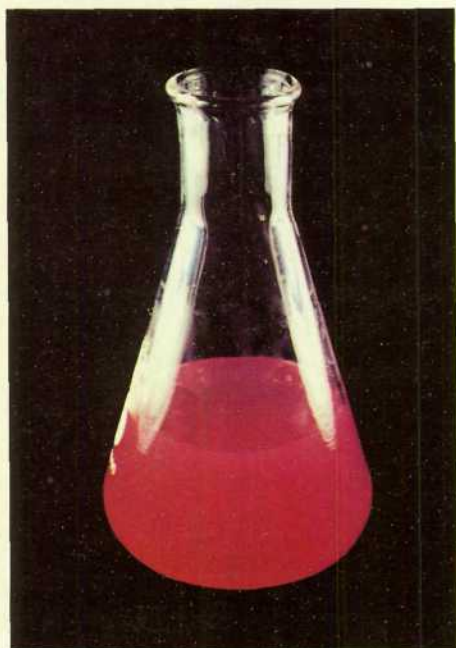
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Brine from solar evaporation ponds (below) looks like tomato juice. The pupae of brine flies (right) were once an important food in the diet of local Paiute Indians.



the peculiar green coats of polar bears in zoos, particularly during the warmer months. It has been shown that green algal cells actually live and multiply inside the hollow core of each hair, thus producing the "green polar bear syndrome." There are numerous other examples of colorful algae and bacteria in our environment.

Except for coloring salt lakes red, the salt-loving bacteria probably seem insignificant to most people; however, they have been studied extensively in recent years by biologists and biochemists. A pigment has been discovered in the cell membrane of *Halobacterium* that is remarkably similar to the light sensitive pigment (rhodopsin) in the rod cells of human eyes which enables us to see in dim light. When we enter a dimly lighted room, it takes

several minutes for our eyes to adjust as the pigment rhodopsin gradually increases in concentration. In fact, during World War II night-flying aviators sometimes wore special goggles just before the start of a mission. The goggles enabled the pilots to see and carry on normal activities while stimulating rhodopsin production in the eye for maximum night vision. The pigment in salt-loving bacteria (called bacteriorhodopsin) enables them to utilize sunlight for energy, just as green photosynthetic plants are able to capture the sun's energy. Future studies of these amazing solar-powered bacteria may lead to new and more efficient uses of the sun as a source of energy, and perhaps a better understanding of the remarkable mechanisms of vision.

The gleaming red salt flats of Owens

Lake can be quite spectacular in the early morning or late afternoon of summer, but not nearly so beautiful as the enormous blue Owens Lake that once filled the deep, sunken valley between the massive Sierra Nevada and Inyo ranges. Like Mono Lake today, Owens Lake was once a haven for many forms of life, from insects and brine shrimp to water fowl. As the water evaporated and the salinity increased, only the most salt tolerant micro-organisms could survive in the brine. This appears to be the fate of Mono Lake unless the natural drainings of nearby streams is restored to its shores. In the case of Owens Lake, the Los Angeles Aqueduct has destroyed a beautiful blue lake, but has created an enormous pink playa of thriving, salt-loving bacteria and algae. **[2]**

THE SECOND TIME AROUND

Make your own sprouting jar

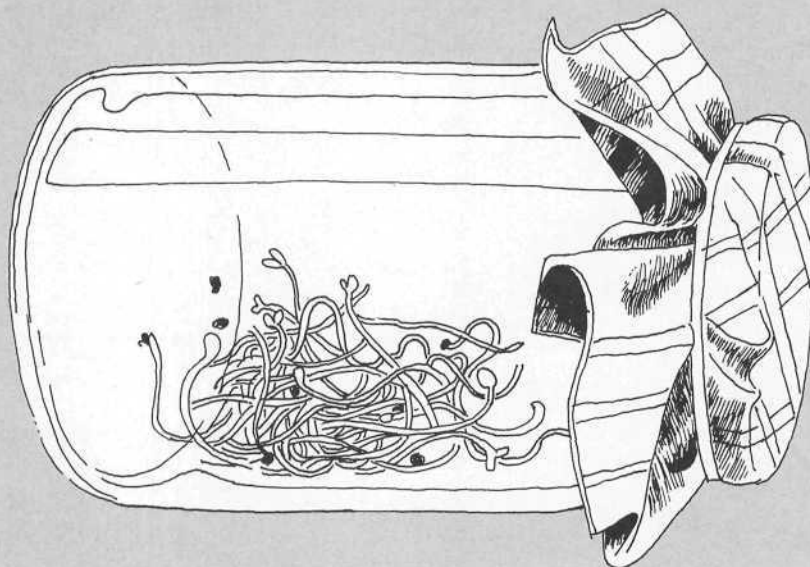
by Nyerges

Save a wide-mouth glass jar. The only other items you need are a piece of cheese cloth and a rubber band to hold it in place. That's it!

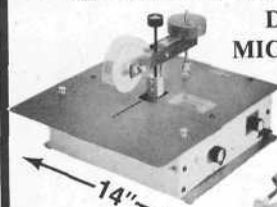
Sprouts are nutritious. You can sprout alfalfa, mung, lentil, wheat, beans, etc.

To sprout:

1. Soak seeds in water overnight.
2. In the morning, drain water and set jar on its side.
3. Twice daily, rinse sprouts and put jar back on its side. Do this until the sprouts are large enough to eat.



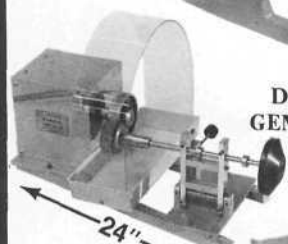
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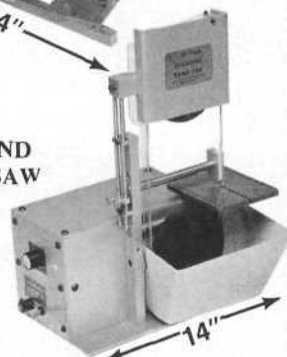
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VOL. 2 NO. 4 • MARY EILEEN TWYMAN, EDITOR • MAY, 1981

SNOWBIRDS FIGHT REGIMENTATION

by Richard Low

Imperial County, Calif.—Each fall, as the Chocolate Mountains shimmer violet in the diminishing heat, an unlikely population of migrants arrives in the surrounding desert, hauling trailers, driving vans and pickup campers with "Senior Power" bumper stickers.

The "snowbirds," as they are called, winter—without electricity or sanitation facilities—on a desolate stretch of federal land called "The Slabs," where Gen. George S. Patton trained his troops during World War II. Or they camp on Quechan Indian reservation lands along the Colorado River.

Sometimes they pull off the highway and drive dusty sedans out into the desert, and pitch tents. If they can afford it, they live in commercial trailer camps near the Salton Sea.

Many of them have sold their homes and live year-round in their recreational vehicles, following the seasons.

Nationally, not much is known about low-income snowbirds. Because of their transiency and their rugged independence from government services, their numbers and economic background are difficult to determine.

Economy draws seniors into the migrant stream, but something quite different keeps them coming back: a sense of community that they often don't find in their own hometowns.

In 1978, Ralph and Dorothy Hoefflinger set up the non-denominational Campers'

Christian Center in a mobile home out on The Slabs—also known as "Slab City"—where campers are spread out over several square miles. The Hoefflingers attempted to set up a formal registration system for the incoming snowbirds.

But when they erected a sign outside the center that said "Registry Slab," it disappeared quickly. Explained one resident: "We've lived with regimentation

all our lives, and we just don't want it anymore."

Over the years, the snowbirds have agreed, without any formal vote, that rules were fine as long as they were not written down, as long as they remained voluntary and subtle.

As they arrive each fall, the snowbirds can, if they wish, enter their names and the names of their next-of-kin, to be contacted in case of emergencies, in-

to a voluntary registration system operated by a somewhat humbled Campers' Christian Center. No signs designate its existence.

Since The Slabs are in such a desolate location, the seniors have established their own radio station, of sorts, on a CB band. At 7:00 p.m. each evening a snowbird called "Good Sam" clicks on his CB base station

Continued on page 36

M-X MAY DRAIN NEVADA DRY SAYS EXPERT

Pioche, Nev.—Jay Lehr, the executive director of the National Water Well Association for the past 13 years, blasted the M-X missile system. As a former University of Arizona professor, Lehr conducted extensive studies on the groundwater supplies

in the arid Nevada desert where the U.S. Air Force hopes to rotate the 200 M-X missiles among 4,600 concrete shelters.

If Nevada gives 20,000 acre feet of water a year to the Air Force for the M-X system, little water could be left for agricul-

ture, mining and light industry uses because it will be flowing to a missile system which will need at least 4,600 wells.

Ground water systems underlying Nevada are connected to the deep water systems. The water table will drop when the Air Force begins pumping water for its missile shelters.

The Air Force has maintained it will follow state water laws in acquiring the water it needs for the missile project. However, Undersecretary Antonia Chayes said recently that the Air Force will seek preferential treatment in acquiring water rights.

The Air Force has already filed 95 applications for water rights in 22 Nevada valleys—39 of these applications within Lincoln County. State water engineer Bill Newman said he has returned ninety of these water applications to the Air Force "for corrections."



Calico lives again on page 32.

—The Lincoln County RECORD

RENTED JUDGES TO SPEED TRIALS

Los Angeles, Calif.—For the going rate of \$500 a day, Californians who want quick, discreet trials can "rent" retired judges to decide their cases wherever and whenever they want. The decision is as binding as any regular court judgment.

The unusual process is legally known as "general order of reference" and exists only in California, according to the American Bar Association.

It's been on the books since 1872 but wasn't used this way until 1976 when two Los Angeles lawyers, Hillel Chodos and Seth Hufstедler, were on opposite sides of a complex dispute between the operator of a medical billing company and two other attorneys.

Using imagination and innovation, Chodos and Hufstедler interpreted the long dormant civil code subsection to allow for what is now called the "rent-a-judge" system.

The subsection—which applies only to civil cases—provides for a trial outside the system by a referee, usually a retired judge, who is selected by both parties in the case.

—Desert News Service

COWS VERSUS TORTOISES

Monticello, Utah—The Utah Farm Bureau and a group of ranchers will take legal action against a U.S. Fish and Wildlife Service plan to eliminate livestock grazing from more than 22,000 acres in Washington county for the purpose of establishing a desert tortoise preserve on Beaver Dam slope near St. George.

The service claims that desert tortoises are vanishing from the area and should be protected under the Endangered Species Act. Ranchers in the area point out that a Bureau of Land Management study disputes declining population of the tortoises. Many people have also testified that there is no conflict between livestock grazing and the safe existence of tortoises because they eat different types of vegetation, and tortoises are in hibernation deep underground during the season when grazing takes place.

—The San Juan RECORD

DUNES HIDE LONG-LOST WHISKEY

by Phillip I. Earl

Tonopah, Nev.—Some 23 miles south of Beatty in southern Nye county lies one of the few real sand dunes to be found in Nevada.

Somewhere beneath that dune lies an abandoned wagon laden with several casks of the finest California whiskey which was being freighted south to the mining camps of northern Arizona sometime in the 1880s.

The freighter and his team had been overtaken by a storm out near the dune. Turning his horses loose to fend for themselves until the storm abated, he bedded down beneath the wagon.

When he awoke the next



RECORD BIGHORN COUNT IN NEVADA

Tonopah, Nev.—Desert bighorn sheep surveys have been completed according to a Nevada Department of Wildlife report with 1,748 animals observed on 12 major mountain ranges in the southern part of the state.

Department biologists classified the record number of sheep during 80 hours of flying time in a helicopter and averaged 21.8 sightings per hour, compared to 16.6 last year. Helicopters have been used by NDOW to survey and classify bighorn sheep since 1969, and have been proven to be the most effective method for obtaining information on population conditions and trends.

—Eureka SENTINEL

morning, he found himself in the middle of a dead calm and walked out in search of his team, but the horses were nowhere to be found. Disgusted, he took what water he had left and hiked to Oasis Valley, where he was able to secure a new team.

When he returned to the sand dune, the wagon was gone. Thinking that it had perhaps been hitched up and pulled away by a group of thirsty travelers, he searched for wagon tracks and other signs leading away from the site, but to no avail. He then thought back, got his bearings and looked for the wagon where he had remembered leaving it, but the site was covered by a part of the dune

which had apparently shifted over during another storm while he was at Oasis Valley. Not having a shovel with him, he decided against trying to uncover his cargo and gave the whole thing up as a bad job.

Although the dune has been searched periodically over the years, likely as not the well-aged whiskey is still buried where the storm covered it almost a century ago.

For those who are interested, the dune is about three miles west of State Highway 95. It is necessary to walk the last mile in, since the terrain is too sandy for most vehicles.

—Nevada Historical Society

JUDGE CUT FEDS TO SIZE

21,000,000 Acres in Wyoming
Reopened to Exploration

Cheyenne, Wyo.—A federal judge in Wyoming has overthrown a U.S. Interior Department opinion closing nearly 21,000,000 acres of western roadless area to oil and gas exploration.

U.S. District Judge Ewing Kerr said Interior Department and Bureau of Land Management restrictions on leasing and exploration of wilderness study areas are much stricter than the Wilderness Act itself.

To allow the Interior Department restrictions would be "ludicrous" and would be

counter to the intent of Congress, the judge said.

The judge also said his review of the Federal Land Policy and Management Act clearly indicates it tries to balance wilderness values with mineral and other concerns.

"Conflicts between policies such as development of minerals and environmental protection are bound to occur," he said. "One policy should not suffer for the benefit of another. Compromises must be worked out."

—Western PROSPECTOR & MINER

TRUCKERS CONVERTED

Sierra Vista, Ariz.—He is a trucker who hauls a special cargo from city to city, truck stop to truck stop. Sam Rust is a traveling minister who takes his church with him. He pulls it with an "old log hauler" that he has transformed into a road tractor.

Rust has been involved in traveling ministry for two years, and chose truckers because he was raised among them on the coast of Virginia. He was called to the ministry and served as a

pastor for 12 years, but when he decided to follow the call to serve truckers, it took him about four years to get enough financial support to start traveling.

Rust spends about half of the year at home and half on the road. Although he enjoys his church stops, the main effort of his ministry takes place at truck stops where he estimates that he reaches 120 "unchurched" truckers a week with his special services.

—Bisbee DAILY REVIEW

ACCESS NOT AUTOMATIC

Washington, D.C.—Private land owners within a national forest do not have a statutory right of access, according to the U.S. Attorney General in an opinion requested by the U.S. Department of Agriculture. USDA can deny access under the Wilderness Act, but a land exchange as indemnity must be offered, according to the opinion.

—Desert News Service

GHOST TOWN TOUR OF OREGON

Salem, Ore.—The one-time boom town of Jacksonville, Oregon has so many restored buildings that it has been designated a National Historic Landmark.

When two pack train drivers, traveling between Oregon's Willamette Valley and California, discovered gold in a local creek in 1851, Jacksonville exploded overnight into a lusty, fast-paced frontier mining town.

When the railroad came

through in 1883, Jacksonville was bypassed and local farmers began trading in nearby cities. The former mining center quickly became a sleepy village.

Jacksonville slumbered until 1950, when the pioneer courthouse was transformed into a county museum, now one of the state's most popular historical attractions. The courthouse conversion triggered a major town-wide renovation that left hardly a pioneer building un-

touched. Today, the refurbished structures bring to life the daily life of Jacksonville's early miners, gamblers, lawmen and farmers.

While Jacksonville, with its population of 2,120, claims to be Oregon's liveliest ghost town, the only thing left to identify the once prosperous Rye Valley, 34 miles south of Baker, is a grown-over cemetery.

Cornucopia, an old mining town in the Wallowa Mountains and Flora, established in

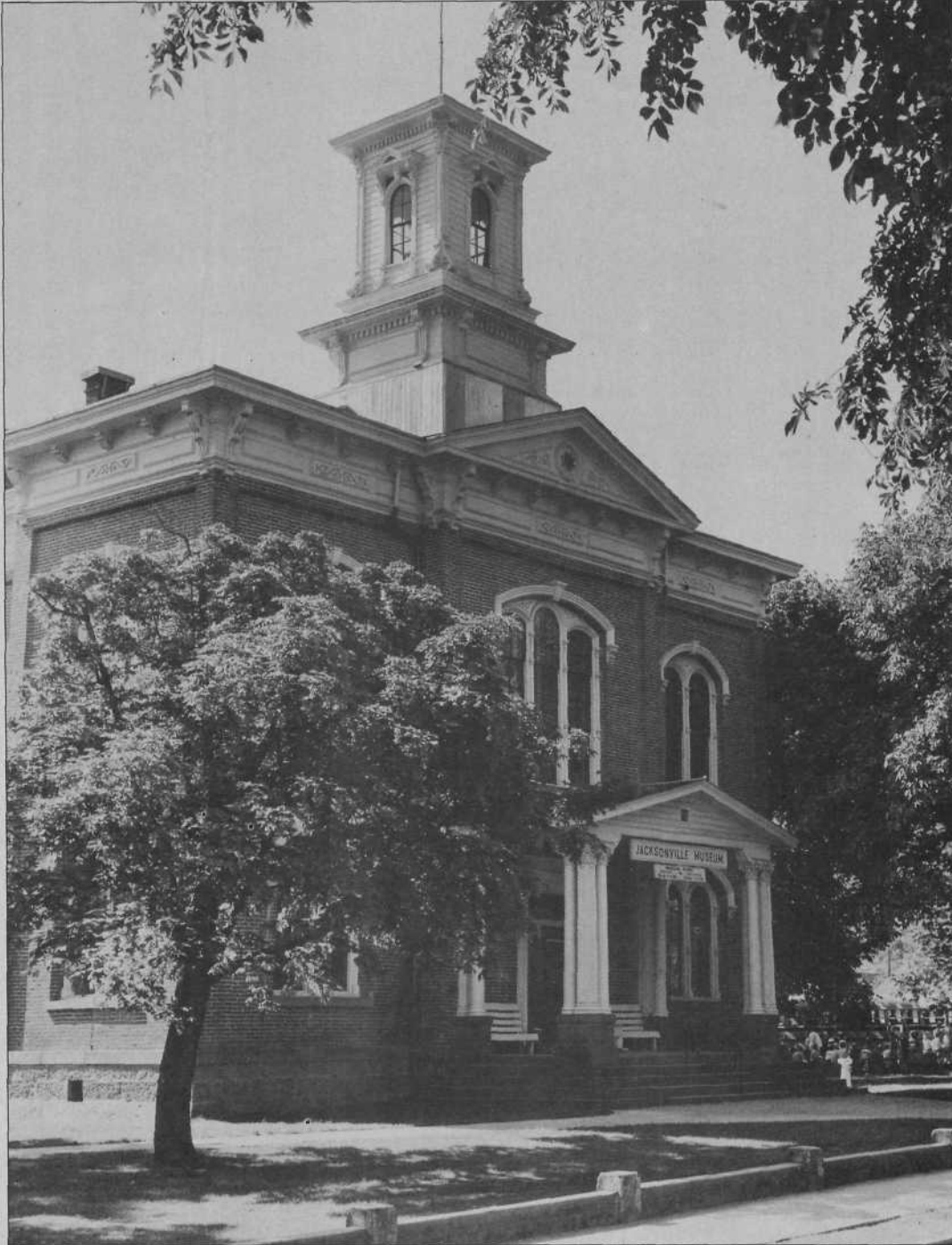
Oregon's early days in the high mesa country by ranchers and sheepmen, still have many unique buildings standing.

The remains of the early mining settlements of Granite, Bourne, Sumpter, Susanville, Austin and Whitney are located close together, 28 miles east of the town of John Day. Because of heavy mining activity, some of the water is reputed to contain arsenic, and as portions of this area are extremely rugged and are subject to sudden rain and snow squalls, the road conditions are classified as "at your own risk."

Southwest of Madras, the old town of Grandview still has a few buildings left, and northeast of Madras the two towns of Shaniko and Antelope can be reached by asphalt roads. Shaniko is the site of the last range war in Oregon between sheepmen and cattlemen, and Antelope's town tavern, complete with swinging doors, spittoons and brass rails, is still in operation. The nearly deserted town of Hardman lies a little further east of Madras and a few miles south of Heppner.

The wooden roads and deserted camp houses of the old logging town of Wendling, 25 miles northwest of Springfield, still remain. And, gold mining still continues in the remote town of Bohemia City, 35 miles east of Cottage Grove. A few people still reside in Kerby, an old mining town in Southern Oregon, all that remain of the 500 who once lived there.

—Desert News Service



The old courthouse in Jacksonville, Oregon, is now a museum.

THE ROSE HAS BEEN AROUND A LONG, LONG TIME

Crooked River, Ore.—A fossilized rose was found here recently, establishing that the aristocrat of the flower garden grew on our continent 35,000,000 years ago. Other paleobotanists claim roses date back to the Cretaceous Age some 70,000,000 years ago, thus predating Cupid by several eons.

—Desert News Service

SILVER COMES BACK TO CALICO

by Wayne Winters

Calico, Calif.—One of the great old mining camps of the west traveled the whole route, from prospect to a booming camp and then on to a gradual decline as silver prices dropped. Death came with the closing in 1941 of the Total Wreck Mine.

Yet today, a century after its founding, more feet tramp the rocky streets of the old camp every 24 hours than did back in the 1880s when a dozen mines were producing the precious yellow and white metals in seemingly endless amounts.

Chances are that all the silver "mined" from the pockets of tourists in 1980, when they came to browse through the attractions of this reconstructed mining camp near Barstow in southeastern California, was in excess of that produced from actual mining activities in any similar 365 days in its long history.

Calico had its beginnings way back in 1875 when "Dad" Lee,

said to have been an elderly eccentric, tapped a rich vein of the precious white metal. He didn't stay around long, wandering from his prospect to a date with death near Old Woman Springs at the hands of the Indians.

Five years later a couple of millmen, Waterman and Porter, relocated the Lee claims. From then on prospectors, miners, promoters and speculators swarmed to the narrow little mesa on the side of the multi-colored mountain, locating claims as fast as they could tote posts in from Mojave River, seven miles away.

The townsite was laid out in 1882, and lots were sold throughout the following year. Things looked bleak for the infant camp when it was all but deserted in the summer of 1882 because of the illness of a large portion of the populace, but the coming of cooler weather in late September brought a new influx of people and once again the camp was on the boom.



How authentic it may be is a matter of opinion, but the schoolhouse at Calico is a masterpiece of skilled carpentry.



Wood, rock and adobe were the materials employed by Walter Knott when he rebuilt the old silver camp of Calico.

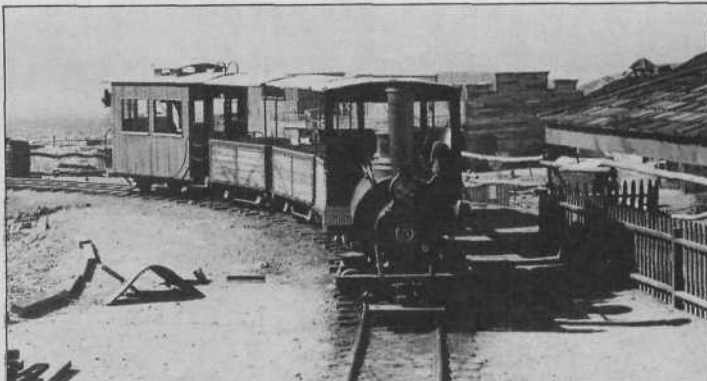
The camp came of age later that year when *The Calico PRINT* first hit the street, and items from its columns began showing up in other publications across the country.

Fire, the bane of almost every mining camp from Tombstone to Butte, hit late in 1883 but Calico was equal to the challenge and Phoenix-like, arose from the ashes in short order. The *PRINT* reported that Calico's colors are not the kind that easily fade, and the camp proved the wisdom of the editor's words, boasting a population of 2,500 by 1884.

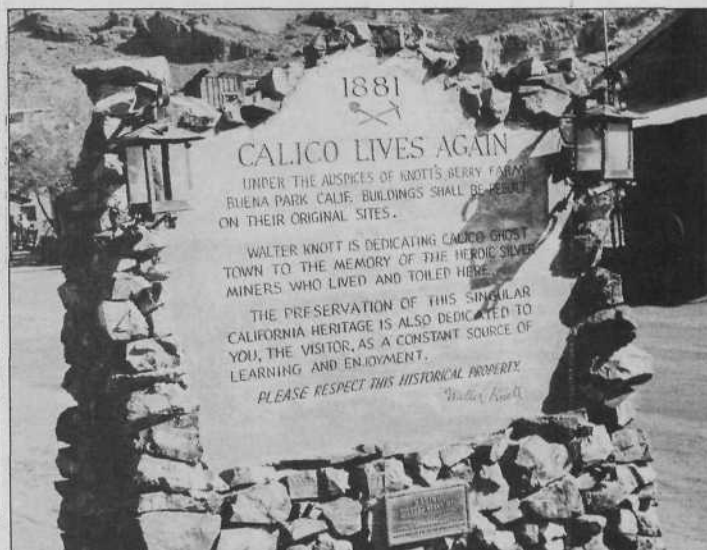
Within another year the camp was a prosperous, busy place. While it was a wide-open town with more saloons than homes, the mine owners were not too touchy about the activities of their employees, generally insisting only on the hardrockers showing up sober and on time to begin their shifts. Operations continued around the clock, with Sunday being "just another workday." Pay was \$3.50 per shift and there was no scarcity of



No ghost town would be complete without its replica of an 1880-vintage headframe, complete with skip and shaft. Real ones, however, weren't usually located on the main street.



The mile-long narrow gauge railroad, which one can ride for a modest fare, was not a part of old Calico. Huge ore wagons carried the ore to the 15-stamp mill, seven miles distant.



Although the camp was restored by Walter Knott of Berry Farm fame, it is now managed by San Bernardino County. The original town was founded in 1875 and died in 1941.



These adobe remains are believed to date back to old Calico, probably having served as homes, shops or offices for the inhabitants of a century ago.

experienced help to carry on the drill, blast, muck and tram routine. Richness of the ores is testified to in the fact that in one 14-month period, the Silver King produced in excess of a million dollars in bullion.

Things were good in and around Calico for a couple of years, but what was later to become known as the "Panic of 1893" was building. The price of the precious white metal was dropping fast and as demand fell off, so did the need for miners. Hard times were upon Calico and every other western silver camp, with miners being laid off in wholesale numbers as mines either curtailed production or shut down. Silver finally rested at about 26 cents per troy ounce and mining stopped.

Chloriders worked the old Calico diggings sporadically for years but all production ended when the United States entered

World War II. It has never been renewed, but with current \$18 silver and \$530 gold, prospectors are again tramping over the multi-colored hills and the music of steel pounding against rock is at times to be heard as the district prepares to come awake.

While the ghosts of old Calico attempt to rest in their pine-board coffins, a new Calico has sprung up—this time a reconstruction of the way the old camp supposedly appeared during its prime. In 1950 Walter Knott of Knott's Berry Farm fame acquired the old townsite and set about transforming it into a tourist attraction.

Calico is now an interesting example of a once great and colorful mining camp. While not exactly authentic, it is nevertheless an accurate representation of what an 1885-vintage desert mining camp might have looked like.

THE DESERT ROCKHOUND



by RICK MITCHELL

Collecting Sites: Western New Mexico offers a good place to pick up Apache tears. The location is off State Highway 78, just on the New Mexico side of the border, and extends east approximately three miles. I have the best luck 2.1 miles east of the state line, where there is a place to pull off the highway on the south. You must crawl under the fence and search the ground, under the pine trees. The tears are not large, most being well under one inch in diameter, but they polish nicely and can be made into beautiful necklaces when strung like beads. I suggest lightly polishing them, trying not to grind away their interesting prune-like exterior. This is a productive and scenic location, worth searching out if you are in the general area.



Interesting material has been found all along Arizona's Santa Maria River, 16 miles east of Bagdad on State Highway 96. There isn't much water flowing in the Santa Maria, and the dry river bed produces a remarkable variety of nice specimens.



Among what can be found are good pieces of mica, quartz, very nice moss-agate and beautiful pastel agate in shades of green,

red and blue.

Petrified cactus has also been found along this stretch of the Santa Maria and is truly a unique addition to any collection. The river is well marked, and the access is on the west side of the large bridge spanning it. Take the road heading down the edge of the river bed, being careful not to get into the soft sand. Park, and walk for a distance, examining the rocks as you go.

New Equipment: Lunzer Industrial Diamonds is now marketing two new diamond-tip scribing pens. Lunzer has long been one of the prime suppliers of diamond-tip pens for glass engraving, and the two new models will make them even more prominent in that field. For more information, contact Lunzer Industrial Diamonds, Inc., 48 West 48th Street, New York, NY 10036.

It was bound to happen sooner or later! There has long been a controversy about whether rotating or vibrating-type tumblers are best. Now, to help compromise that controversy, the B&I Manufacturing Company has designed the Vib-Rotor, which is a vibrating, rotating tumbler. The new Vib-Rotor needs to be charged only once with grit and once with polisher to produce lustrous stones in six to nine days. This could be a breakthrough in tumbling. I have not had the opportunity to use the machine myself, but I've heard that it is everything it is advertised to be. For further information, contact B&I Manufacturing Company, 1205 E. Belmont, Fresno, CA 93701.

The Crystalite Corporation is now producing diamond roughing wheels. They come in four and six-inch diameters and look something like diamond saw blades, but are thicker. The entire circumference is coated with a rounded berm of 100 diamond grit. This outer berm comes in 1/8 and 1/4 inch thicknesses, on the four-inch radius models, or 3/8 inch thickness on

the six-inch ones. These roughing wheels are very useful in shaping contoured items, especially fire agate, and can also be used for carving and glass beveling. I am sure, if you do any lapidary work beyond cabochons and faceting, that these new roughing wheels can add considerably to your creativity and perhaps lead to results that otherwise would have been very difficult or even impossible to achieve. For more information, contact the Crystalite Corporation, 13449 Beach Avenue, Marina Del Rey, CA 90291.

There are two new adhesives on the market, both distributed by Johnson Brothers. One is Hot Stuff, a glue that only takes three to 10 seconds to dry. It can only be used on tightly fitting parts, though, but this allows useful applications in cabochon mounting. A drop of Hot Stuff on the back of a flat cabochon and, in a matter of seconds, it is bonded to the mounting.

The other glue is Hot Stuff Super T, which will fill gaps, so the parts to be bonded do not necessarily have to fit tightly. It does, however, take a little longer to dry, about 10 to 25 seconds. Both of these ultra-fast adhesives should have a multitude of uses in the lapidary field. They are clear and will also take a polish. Both should be available at most lapidary stores in your area. If not, write Johnson Brothers, 17961 Scotia, Huntington Beach, CA 92647, for addresses of suppliers.

Publications: A complete, 71-page report on gold mining in Wyoming is available from the Geological Survey of Wyoming, P.O. Box 3008, University Station, Laramie, WY 82071. It covers the history of gold mining in the state, as well as current prospects and production. It is informative reading for anyone who has an interest in Wyoming mining, or who plans to visit that state in quest of gold in the near future.

A new book, *Amber: The Golden Gem of the Ages*, by Patty

C. Rice, has recently been published and is most interesting. It covers the various sources of amber throughout the world, as well as its varieties, history, mining and inclusions. There is also a section on old-time beliefs and superstitions regarding amber. The book is a must for anybody having an interest in that organic gem. The publisher is Van Nostrand Reinhold Company, 450 West 33rd Street, New York, NY 10001.

A Starter Gem Collection: Paul Durand, 300 North Fourth, Room 1414, St. Louis, MO 63102 is offering an excellent introductory set of gemstones to those just getting into the hobby or wanting to give gemstone gifts. The set comes in a velvet-lined jewelry case and contains ten cabochons and facet cut stones, with complete information about each. The price is \$50.00, which includes shipping costs. All of the stones are cut by Durand, who has long been recognized as a first-rate gem cutter.

Helpful Hints: Marcasite specimens often cause the collector problems because of their tendency to decompose. A good way to slow this process is offered by the Oil Belt Rockhounds. They suggest first submerging the piece in a solution of one heaping tablespoon of baking soda and a quart of water. Soak it until the effervescence has ceased, then wash it in clear water. Finally, dry it and dip into medium weight mineral oil. Let it drain onto a paper towel and wipe off excess oil. This procedure will make the marcasite sparkle and will help prevent further decomposition.

Bottle Collectors: Have you ever found an old bottle and wondered if it will turn purple? A good way to find out is with a black light. Green fluorescence indicates it should turn purple when exposed to sunlight for an extended period of time. If no fluorescence is observed, most likely it will never turn the beautiful amethyst purple so prized by collectors.

DESERT CALENDAR

Mar. 6-Apr. 12: "Little Mary Sunshine," Mission Inn Dinner Theater, Mission Inn, 3649 7th St., Riverside, Calif. Thursdays through Sundays. For reservations, call (714) 784-0300.

Continuing through April: From Generation to Generation. Folk culture in Albuquerque. Albuquerque Museum, Albuquerque, New Mexico.

Through Apr. 25: The Point is Graphic. Native American prints and posters. Wheelwright Museum, Santa Fe, New Mexico.

Apr. 1-7: Centennial Days Celebration. All day, downtown Gallup, New Mexico. For further information call the Gallup Chamber of Commerce.

Apr. 7: Navajo Rug Auction. 7 p.m., Crownpoint Elementary School, Crownpoint, New Mexico.

Apr. 11-12: 8th Annual Desert Wildflower Tour. Cooke Range, Florida Mountains, Bear Mountain Guest Ranch. Silver City, New Mexico.

Apr. 23-26: Rediscover New Mexico. Tourism exhibits. All day. Winrock Center, Albuquerque, New Mexico. Contact Albuquerque Chamber of Commerce for more information.

Apr. 25-26: 3rd Annual Rail Festival at Orange Empire Railway Museum. 17 miles south of Riverside in Perris, California. Movies, music and unlimited train rides. Admission is \$4.00 for adults and \$2.50 for children 6-11. Trains and trolleys will run between 10 a.m. and 6 p.m. The museum is located at 2201 South A Street in Perris. For further information, contact Jim Walker at (213) 240-9130.

Apr. 25: 12th Annual Plant Sale. Theodore Payne Foundation, 10459 Tuxford St., Sun Valley, California. Hours: 10 a.m. to 4 p.m. Admission free. Featuring native plants, succulents, cacti, herbs, perennials.

Apr. 25-26: 15th Annual Ranch Spring Bird Migration Weekend. Various species in Gila National Forest and Gila River. Bear Mountain Guest Ranch, Silver City, New Mexico.

Apr. 25-26: 32nd Annual Nature's Treasures Show, sponsored by the South Bay Lapidary and Mineral Society at the Torrance Recreation Center, 3341 Torrance Blvd., Torrance, Calif. Admission is free. Hours: Sat. 10 a.m. to 7 p.m. and Sun. 10 a.m. to 5 p.m. For further information write P.O. Box 1606, Torrance, CA 90505.

Ongoing through April: The Eldorado Polo Club's winter season with matches every weekend at 2 p.m. Admission is free. For more information contact Alex Jacoby, Mgr., P.O. Box 733, Palm Desert, CA 92261 or call (714) 342-2223.

In April: Date to be announced.

Multicultural Week; a celebration of Hispanic, Native American, Afro American and Anglo cultures. For exact date and further information, contact New Mexico Highlands University, Las Vegas, New Mexico.

In April: Date to be announced. Navajo Spring Round-Up and Rodeo. Country and Western Show, Indian Rodeo in Window Rock, Arizona. For further information on date and time, contact the Window Rock Chamber of Commerce.

May 1-3: Rose Festival festivities include Queen's Coronation, pancake breakfast, parade, chuckwagon feed, craft booths, carnival rides and an art show. Tularose, New Mexico. For further information, contact Tularose Chamber of Commerce.

May 2-3: Spring Festival. Traditional Spanish colonial crafts, field planting, food, entertainment. Old Cienega Village Museum, Rancho de las Golondrinas, La Cienega, New Mexico.

May 7-17: Orange Belt Mineralogical Society presents their 35th annual show in conjunction with the National Orange Show. Weekdays noon to 10 p.m. and weekends 10 a.m. to 10 p.m. Continuous demonstrations. For further information, contact show chairman Marvin Jones, P.O. Box 5642, San Bernardino, CA 92412 or call (714) 883-1007.

May 9-10: The 22nd annual Gem & Mineral Show presented by The Searchers will be held at the Brookhurst Community Center, 2271 West Crescent Ave., Anaheim, Calif. Hours are Sat. 10 a.m. to 8 p.m. and Sun. 10 a.m. to 5 p.m. Demonstrations of jewelry making and faceting of gemstones. Admission is free, food and drinks will be available. For further information, contact George E. Arvanites, P.O. Box 3492, Anaheim, CA 92803.

May 16-17: Fiddler's Contest. Sponsored by Luna County Ranchette Owner's Association. All day. Hospitality House off Rockhound Park Road south of Deming, New Mexico.

May 16-17: 18th Annual "World of Gems" sponsored by the Berkeley Gem & Mineral Society at the Activities Building, Contra Costa College, 2600 Mission Bell Drive, San Pablo, Calif. Admission: Adults—\$1.00, Children—\$0.25. Hours: Sat. 10 a.m.-8 p.m. and Sun. 10 a.m.-5 p.m. There will be exhibits of lapidary art, minerals, fossils and handcrafted jewelry. For further information write P.O. Box 755, Berkeley, CA 94701.

May 22-24: Annual Green Fair and Balloon Festival. Spring exhibits. 8 a.m. to 5 p.m. at Red Rock State Park, Gallup, New Mexico.

May 30-31: May Fair. Arts & Crafts, entertainment and dance. Cloudcroft, New Mexico.

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Continued from page 29

and calls roll. If anyone fails to answer, a search party goes out.

During the last few years, a new element has been added to the social fabric of The Slabs. Younger people are beginning to arrive, families down on their luck, who are taken in by the seniors.

This year, for the first time, a school bus from Brawley picks up 18 children each morning at The Slabs.

Not everyone is enchanted with the sense of community. One fellow, who has been coming to The Slabs since 1932, lives out on the fringes of Slab City, and has erected a "No Trespassing" sign. He has limited his social contacts to two cats, two dogs and two friends.

—Palo Verde Valley TIMES

WILD HORSE ANNIE HONORED

Grand Junction, Colo.—A 27,000-acre canyon area near here has been designated as the Little Book Cliffs Wild Horse Range, and has been dedicated to the late Velma B. (Wild Horse Annie) Johnston by the Bureau of Land Management.

According to Secretary of the Interior, Cecil Andrus, "Wild Horse Annie was the single greatest force for federal legislation against inhumane treatment of wild horses and burros on the public lands."

An executive secretary with an insurance firm in Reno, Nevada, Mrs. Johnston crusaded for 17 years on behalf of wild horses and burros on the public rangelands. Considering the animals to be part of the nation's living western heritage, she shepherded two wild horse and burro protection bills through Congress.

—Desert News Service

103-YEAR OLD SURVEY FOUND

Winnemucca, Nev.—A U.S. Army document dated Oct. 6, 1877, was found on Pahute Peak in the Black Rock Range by a Bureau of Land Management archeologist.

The document was folded and rolled up inside a cylindrical metal tube that had been soldered at one end to protect the contents.

The paper is a Corps of Engineers form that listed, in

COWS TO AID ENERGY CRISIS

New Method May Produce Methane from Alfalfa Via Cows and Manure

Blythe, Calif.—Cows doing what comes naturally may provide part of the answer to America's energy crisis. At an experimental facility in the Imperial Valley, scientists from the Southern California Gas Co. and the Pacific Gas and Electric Co. have been awarded a federal grant to evaluate the commercial prospects for converting cattle manure into methane, the principle component of natural gas.

The U.S. Department of Energy recently authorized a \$327,000 grant under the Synthetic Fuels Act to expand this research program to study the economic, technical and environmental feasibility of building and operating a commercial-sized plant.

Such a plant would produce as much as 1,800,000 cubic feet of methane daily from 100,000 head of cattle. The gas would be distributed by Southern California Gas Co. and could supply up to 67 percent of the utility's residential customers' gas needs in the Imperial Valley.

Once the methane has been extracted from the manure, what's left is a virtually pasteurized byproduct that is roughly equivalent in food value to high fiber alfalfa hay and could be used as a livestock feed supplement.

A recent study shows that methane from manure can be produced for as low as \$2.11 per million British thermal units with credits for the byproduct.

—Palo Verde Valley TIMES

ATLAS DEFINES U.S. DIALECTS

Hillbillys Are Crackers in Georgia Hayseeds in Maine

Chicago, Ill.—In Kentucky, a hillbilly is a hillbilly, but in Maine, he's a hayseed. In Georgia, he's a cracker, but in New York state, he's a backwoodsman.

In the "American" language—or English as it is spoken in America—there are at least 479 differing things one can call a person of conspicuously rural origin, according to Raven McDavid, who has spent decades collecting such terms.

McDavid, a professor emeritus at the University of Chicago, has toiled since the 1940s gather-

ing words and pronunciations for his "Linguistic Atlas of the United States," which, when it is finished, will be a virtual library of all the dropped consonants, mispronounced vowels, ain'ts, cain'ts and t'aints in the country.

Not only do the words used by Americans vary vastly from community to community and state to state, but the pronunciations vary drastically, even from one city neighborhood to another.

—Desert News Service

WILD HORSES TO GET THEIR WATER

Elko, Nev.—In Nevada's Dry Lake Valley and at another site in Antelope Valley, south of Battle Mountain, the Bureau of Land Management is moving to establish watering holes for the wild horse population.

The Animal Protection Institute, which criticized the BLM earlier this year on grounds that the horses are sometimes blocked from waterholes during the hot spells and then die of thirst, has said the BLM action "is a good start" to correcting a festering problem.

Private landowners with wells on public land have been responsible for fencing the horses out of the waterholes, but API contended the BLM is responsible for the horses under the Wild Horse and Burro Act and should take the necessary steps to save them.

The two new waterholes are being created in areas where API and WHOA! (Wild Horse Organized Assistance) had forcefully pointed out that the horses were endangered.

Wild horse defenders contend that if a private party gains water rights on public land, there should be a provision that he has to allow access to all corners, human and animal.

—Elko INDEPENDENT

PHELPS-DODGE PLANS PROBE OF OLD MINE

Bisbee, Ariz.—News that the Phelps-Dodge Corporation intends to begin exploring abandoned mine shafts in Bisbee for gold and silver deposits has prompted speculation about how much precious metal lies underground, and where the company plans to search.

Phelps-Dodge officials play down the project, calling it a "long shot" that would have an insignificant effect on the local work force even if substantial amounts of ore are located. Spokesmen have also declined to reveal which specific mine shafts they are planning to probe.

But a group of unofficial spokesmen, Bisbee's retired miners, almost unanimously chose the Shattuck and Cole shafts as spots that hold potential as gold and silver sources.

—Bisbee DAILY REVIEW

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HUECO TANKS

Island or Rock Pile?

by Joseph Leach

THIRTY MINUTES east of El Paso, a reddish stone uplift floats serenely over the plain like a great island in time. Or to speak prose, a jumble of rocks called Hueco Tanks sits squat amid the Chihuahuan desert's cacti, ocotillo and sand. Now a Texas State Historical Park encompass-

Today, a pageant of birds and animals and men endlessly repeats itself at the Tanks. Among the park's ferns, hackberry trees, Texas mulberries, Mexican buckeye, acacias, junipers and Arizona scrub oaks, hundreds of birds normally flourish. Among these are eagles, hawks, grebes, ducks, teal, turkey vultures, quail, coots, sandpipers, snipe, mourning doves, owls, hummingbirds, flickers, cliff swallows, bats, cactus wrens, mockingbirds, robins, bluebirds, shrikes, warblers, red-winged blackbirds, orioles, finches, juncos, buntings and sparrows.

Over the centuries, animal life at the Tanks has included deer, bears, pronghorns and bighorn sheep; today it still numbers jackrabbits, gray foxes, skunks, lizards, bobcats, porcupines, snakes and an occasional mountain lion.

MAN CAME onto the scene with the arrival of a nomadic, archaic people bringing simple weapons, basketry and skill in crafting yucca fiber and rabbit skins into garments. They were followed about 900 A.D. by an offshoot of Pueblan peoples bringing knowledge of pottery and corn and squash, and perhaps other crops.

In the 1600s, the placid Tiguas arrived from northern New Mexico, followed soon by the marauding Mesquero Apaches. Each of these peoples left signs of their passing—potsherds, stone tools, arrowheads, mortar holes ground into the boulders, garments and sandals cast aside in the caves. On the cliff faces and cave walls, each successive culture imposed a vast display of its art.

Their red, yellow, black, white and brown paintings survive by the hundreds, making Hueco Tanks one of America's major prehistoric art galleries. In paint they displayed their daily routines, their rituals, their lore, their sexuality and—one is convinced—their sheer love of fun and geometric design. Snakes, antelope, deer, insects, birds, horses and men (static and dancing, leaping and flinging their arms),



JOSEPH LEACH

Americans of every generation have left their marks at Hueco Tanks, stopping first for its precious water and now for its beauty.

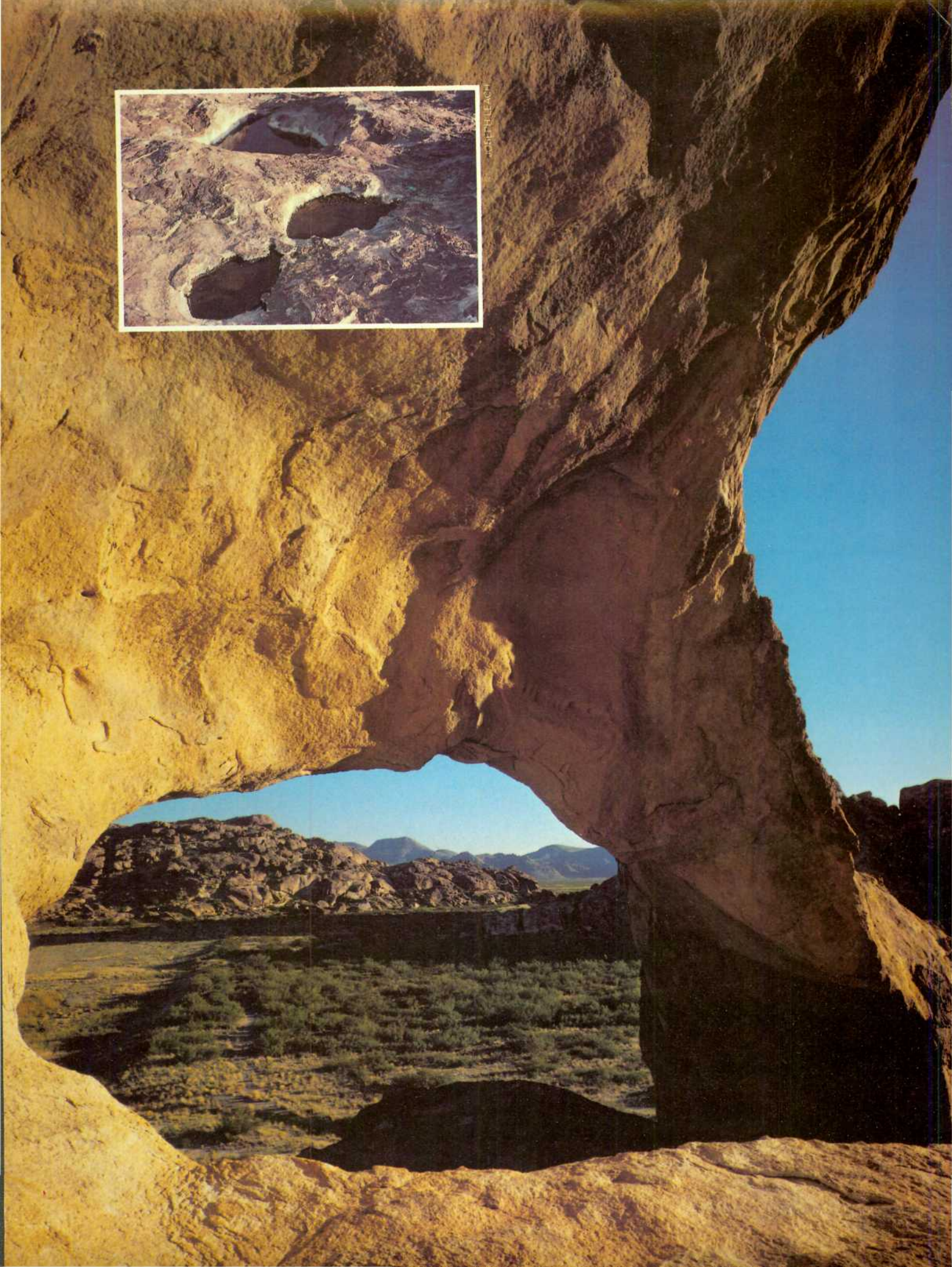
ing 860 acres, the Tanks—*island or rock pile or whatever you will*—have held special meaning for unnumbered centuries, and still do.

The story begins in the dim geological past, some 34 million years ago, when a molten mass of syenite intruded upward into sedimentary rock and stood firm, while water and wind eroded the softer limestone away. Exposed as enormous boulders, tumbled together like a giant's collection of toys 300 feet high, the rock pile withstood.

As centuries of weather and sunshine scaled and bombarded its surfaces, bubble-like pits developed into natural *huecos* (Spanish for "basins," hence the name of the place), holding water for weeks after rainfalls or snows. Cave-like pockets among and under the boulders offered more water storage and favorable growing conditions for non-desert plants. Ultimately, the pockets and big boulders afforded excellent shelter when birds and animal life settled in. Then ancient man wandered into the area, some 10,000 years back.

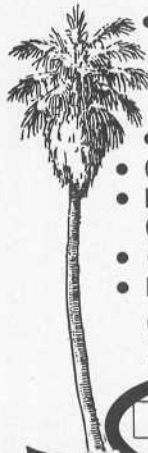


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human faces staring straight at the viewer, handprints implanted perhaps as early illiterate attempts to say "Kilroy was here," all these and more decorate cave after cave.

The red aborigines' hold on the Tanks gradually weakened as white Europeans arrived. In 1659, when Spanish Franciscans established a mission at El Paso del Norte (now Ciudad Juarez, Mexico) thirty miles west of the Tanks, the Indians could have foreseen their end. Over the next two centuries the tall rocks looked down upon Spanish and Indian skirmishes, then upon Mexican and Indian fights, until in 1840 a Mexican militia, fed up with Apache raids on El Paso del Norte's livestock, surrounded the thieves in the heart of the Tanks and exterminated nearly a hundred. Apache bones bleached in the desert for years.

Summer 1849 brought the first sizeable wave of fair-skinned Americans. Most were wagon-train pioneers en route to California's gold fields. Many, perhaps fearing the worst from perils ahead, inscribed their names in black soot on the cave walls as proof they had made it that far. Several such names still survive.

In March, 1851, John Russell Bartlett, U.S. Boundary Commissioner, wrote a detailed record of his visit, remarking upon the "tanks of clear and beautiful water." Published in 1854, his *Personal Narrative* includes his transcriptions of many Indian pictures that are still visible.

During 1858 and 1859, the Butterfield Overland Mail Line maintained a way station to provision its stagecoaches in their rush to cover the 2,700 miles between St. Louis and San Francisco in less than 26 days. Stage drivers and passengers, like the nomadic Indians, recorded their names and quick sketches. In September, 1858, an extremely dry period when the *huecos* stood empty, the station master welcomed the stagecoach with a helpless gesture at two eight-gallon kegs: "The only water we have left," he said, "for a dozen men and as many head of cattle."

In 1898, Heuco Tanks became the private domain of rancher Silverio Escontrias, who deepened the ponds the Butterfield Company had eventually dug, to increase the water supply for his cattle. Some say the crudely constructed stone dam that impounds a goodly pond near the overhang called Comanche Cave dates from Escontrias' time.

Since then more pioneers, more westering emigrants, latter-day campers and picnickers have added their names and designs to the rocks. Many, not most, have dropped their broken bottles and trash helter-skelter. And there were those who, out of ignorance perhaps, have defaced some of the art with graffiti superimposed on the prehistoric. In our time, ignorance accounts for some of the vandalism, but not all.

So, to defend the area's unique legacy, the Texas State Parks and Wildlife Department added Heuco Tanks to its official park system in 1969. Under strict management now, the natural scenic features that have intrigued visitors at whatever time they arrived and however long they remained are fully protected, as are the wildlife, the Indian art, the pioneer names and the Butterfield ruins.

Today, for the visitor's convenience, a paved access road leads in from U.S. 180 to picnic shelters, comfort stations

*Summer 1849 brought the first
sizeable wave of fair-skinned
Americans. Most were wagon-
train pioneers en route to
California's gold fields.*

and overnight camping facilities. More than providing convenience, government management helps emphasize Hueco Tanks' special importance.

Strolling the trails, clambering onto the rocks, peering into the caves, taking notes maybe, taking pictures perhaps, taking thought surely—as Henry David Thoreau advised all people to do when they contemplate nature's mysterious grandeur—one grasps some feel of the long pageant that has played, and still plays, at this place.

At night when the park gates have clanged shut, or off-season when high summer heat keeps most people away, Heuco Tanks returns to its permanent owners, the birds and the rabbits and the ghosts of countless travelers. In a sense that most modern men have trouble appreciating, it emanates stillness and silence. Perhaps the ruddy rock pile does become then its own truest self, a serene lofty island floating through time. **[Z]**

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We'll all agree there's nothing like the great outdoors, whether it be a walk down that gorgeous desert drywash, hiking up a mountain trail, or strolling along the beach. But what most people don't know is that just below the surface of that dry wash is gold—precious metal that can be recovered easily, cheaply, and with no damage to the environment. Few hikers realize that that rusty can laying on the trail could be the key to finding old bottles nearby, many worth hundreds of dollars each. And the most accessible riches are the untold gold and silver rings, coins, chains and assorted jewelry laying just under those beach sands, waiting to be found!

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The Life and Times of **PADRE KINO**

He was unique in southwestern history: he came to give.

by Joseph F. Kelly
Photographs by the author

This statue of Padre Kino (below) is considered an accurate likeness. Interior of ruined Cocospura (right) shows ornamentation above the altar.



FIFTY MILES southeast of Nogales as the buzzard flies lies Cocosपुरa. There isn't any town there; the road that passes by isn't heavily traveled. Most of the passing traffic is buses and trucks, bound for Cananea, a small ranching center. Tourists seldom visit Cocosपुरa. It is off the routes to the beaches, too far from the border to be convenient and takes a drive of many dusty miles along mountain roads to get there.

On a knoll looming over a turn in the road is a heap of disintegrating adobe bricks which once were the mission of Nuestra Señora de Pilar y Santiago de Cocosपुरa, founded by Padre Kino. The ruins look old, and they are. From an aesthetic viewpoint, the founders chose well — the site dominates the surrounding valley. As a practical matter, though, the choice was a disaster. It stood in the center of a favorite route for raiding Apaches.

After 200 years of raids, rebuilding and still more raids, the priests abandoned the mission. Then came the treasure hunters, fools with fairy tales and pickaxes who continued the destruction. After the treasure hunters left, the weather damaged the ruins still more, aided by the indifference of state authorities, who failed to protect the site. If you want to see the ruins, don't delay; each rain melts away a little more history.

During his missionary career, Padre Kino built 22 such missions. Of these, 12 have disappeared, destroyed by marauding Indians, bandits or vandals. Of the 10 sites remaining, eight have been completely rebuilt. At the ninth, San Ignacio, the original walls have been plastered over and painted, buttresses and additions built on, and a new town has risen around the old church plaza. It is only at Cocosपुरa that the ghost of a long dead Jesuit might find a familiar structure. In Padre Kino's time, he was pastor to three such churches. Two of them are among the vanished. Only Cocosपुरa remains, the last of a type and hard to duplicate, much like the man who conceived it.

IN THE Italian Tyrol at Segno, a small town near Trent, a son was born to the Chino family on August 10, 1645. A family of minor nobility, the Chinos were able to send their son, who showed academic promise, to good schools. The boy, christened Eusebio Francisco, attended a Jesuit college at Trent and another near Innsbruck, Austria.

Eusebio became seriously ill while in Austria and was not expected to live. The 18-year-old student prayed to St. Francis Xavier to intercede on his behalf, promising that if he were spared, he would devote his life to God. The young man recovered and entered the order of Jesuits at the age of 20. He received training in science and mathematics, along with theology, at schools in Innsbruck, Ingolstadt, Munich and Oettingen. His brilliant scholastic record came to the attention of the Duke of Bavaria, who offered the young priest a teaching post at the University of Ingolstadt, but missionary work beckoned.

Father Eusebio wanted to go to a post in the Philippines; another newly graduated missionary also wanted the post. Lots were drawn: Eusebio lost and was sent to Spain to await transport to the New World. His life was slated to be filled with disappointments and delays: As his ship from Italy approached the coast of Spain, a fleet bound for the Indies passed him by. He had missed his boat and had to wait for the next flotilla.

While in Spain, Father Eusebio Chino changed the spelling of his name to Kino, as the Italian spelling meant "Chinaman" in Spanish. After a two-year wait, he boarded his transport ship. It never got out of the harbor: the ship struck a sand bar, and Father Kino had another six-month delay.

In 1680, Padre Kino finally arrived at Tampico and traveled overland to Jesuit headquarters in Mexico City. At the time of his arrival, the order was engaged in teaching in colonial colleges, but Kino asked for a missionary post. His reputation for intelligence, skills in science and very obvious zeal convinced his superiors that a way should be found to grant his request. The chance came in 1683: Padre Kino was to accompany an expedition to Baja California with orders to map the land in addition to performing his religious duties.

Baja California was almost unknown at that time, but Spanish pearl divers had made earlier contact with the natives. Their cruelty left a feeling of fear and hostility with the Indians there, and when Kino's group landed near present-day La Paz, a large party of natives threatened them. Padre Kino, alone and unarmed, walked toward the Indians. He gave them small gifts and seemed to impress them with his quiet courage. This was to be the first of many such contacts between the priest and hostile natives. In each

instance, something happened: The natives sensed that Padre Kino was no threat, but a friend.

Unfortunately, the good feelings created by the missionary weren't to last — Spanish cruelty reappeared. A small settlement had been established, and the missionary effort was going well. Padre Kino was on the Pacific coast of Baja California making maps when the trouble came. Some of the settlement's soldiers suspected the Indians were stealing, and invited the suspects to a feast. While the Indians were peacefully eating, the soldiers fired a cannon into the group.

The survivors gathered a large war party and were preparing to attack the Spanish camp when the arrival of a ship from the mainland allowed the Spanish to evacuate. They sailed farther north and landed again on the west coast of Baja California. This outpost, too, was doomed. Spanish probes reported little to be exploited in Baja California, and funding was cut off by authorities in Mexico City. The disappointed Padre Kino was ordered back to the mainland, but he had learned a valuable lesson about the colonial Spanish.

PADRE KINO's second chance came in 1787. This time he was assigned to "The Rim of Christianity," the northern frontier of Mexico, also known as Primeria Alta. Civilized Mexico ended at the edges of the Altar and Magdalena rivers, about 75 miles south of the present international border at Nogales. It was there the Pima Indians had defeated an army of conquistadors. To the north of Sonora, in present-day Arizona, the nomadic Pimas lived along the banks of the Santa Cruz and San Pedro rivers. Another group of nomads lived in the deserts toward California; they came to be known as Papagos (bean eaters) to the Spanish, for their diet of mesquite beans. East of Primeria Alta was Apacheria, land of the people the Spaniards called the Tigers of the Desert. At the time of Kino's arrival, the geography of the northern lands was unsure. Many believed California was an island.

When Kino arrived in Primeria Alta, he was prepared. Other missionaries had told him of their experiences with initial contact. Kino had obtained a royal *cedula*, a document that proclaimed any Indians converted by him exempt from the *repartimiento* system. This system was devised to assign a number of Indians to each Spaniard to

Church at Magdalena in Sonora stands across the plaza from the Kino Shrine.



care for and instruct. In reality, the greedy Spaniards used the system to enslave the natives. Mexico was suffering a labor shortage. Thousands of Indians had died of European diseases and mistreatment as slaves in the silver mines. The exemption helped Padre Kino protect his new converts, but it was resented by the avaricious colonial Spanish, who sought revenge in slandering the priest.

Kino's first Pima contact and mission were at Dolores, Sonora. He gave the Indians new crops to raise — such as wheat and citrus — showed them better ways to farm, introduced cattle and ranching, taught them European skills like iron and wood-working and showed them that if they lived in organized towns and worked together, they would not have to face periodic starvation. He taught his religion without insulting tribal beliefs. The Indians idolized him.

This was the first of many such mis-

sions as well as ranches and *visitas* (circuit stops) he was to found as he rode hundreds of miles across previously uncharted deserts. His area of contact spread from near present-day Phoenix west along the Gila River to near what is now Yuma, at the junction of the Colorado and Gila rivers. While exploring and converting, Kino proved California could be reached via land. Kino drew many maps.

Padre Kino's missionary career lasted 24 years. In that time, the priest crisscrossed thousands of miles in the southwest. He is often called Arizona's Most Important Pioneer and the Father of the Southwestern Cattle Industry. He died at Magdalena, Mexico, in 1711 and was buried in front of the altar of a small chapel dedicated to his patron saint, Francis Xavier. In the years following Kino's death, many changes came to Mexico. The chapel and adjacent church were razed; another church was built there in 1832 and still stands. Padre Kino's grave site was forgotten.

In what was once Primeria Alta, violent unrest gave rise to wars, revolts, Indian uprisings, filibustering attempts and bandit armies. The northern portion of Primeria Alta became Arizona with the Gadsden Purchase. Padre Kino became a legend, leaving a legacy of religion, language and culture to the southwestern Indians.

After the passing of Kino, the Jesuit mission chain began to come apart: his was a hard act to follow. In 1761, Mexican authorities decreed that a branch of the Pima nation, the Sobapuris, should move from their San Pedro River home to join the Pimas along the Santa Cruz River. The Apaches moved into the vacated land, increasing attacks on Pimas and Mexicans alike and raiding deep into Sonora. These raids continued for nearly 200 years. In 1767, the final ax fell. Carlos III of Spain wanted complete control of his empire; he decided the foreign (Jesuit) priests had to go. He ordered the arrest and expulsion of all Jesuits from any part of his kingdom, with a death sentence for any Spanish official who failed to obey.

In New Spain, the Jesuits were seized without warning, chained, mistreated, locked in prisons and then, after a forced march without enough water, expelled. Many died of the hardships. The Spanish Mexicans were taking revenge on the priests who had shielded the Indians. After the expulsion, an attempt was made to reestablish the missions with the gentle Fran-

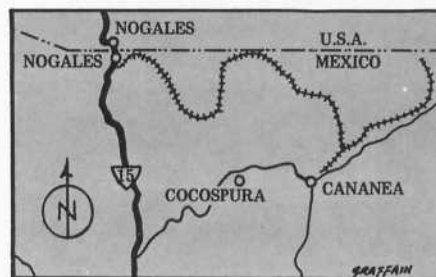
ciscans, all either Spanish or Spanish Colonial by birth. The Franciscans tried: they rebuilt some of the destroyed missions, but Mexican authorities failed to support the effort. The Apaches waged a relentless war. In 1856, the Franciscans gave up. Most of the missions established by Padre Kino were vacant and/or destroyed.

Interest in Padre Kino was renewed in 1966, when a joint Mexican/American team of archeologists and historians discovered his grave site under a sidewalk in Magdalena. The City of Magdalena, with aid and cooperation from the Mexican federal government, constructed a memorial. The grave was left open, protected by a glass-windowed vault. The area between the grave and the present-day church was made into a lovely 15-acre plaza with tiled pavements, water fountains, covered walkways around the plaza's edge and plantings of roses and flowering trees.

There are many statues in Kino's honor, but all are based on conjecture, for no likenesses of the priest are known to exist. A record of his physical description, from his first voyage, is still available in Spain. It depicts him as five feet, six inches tall, with a broad nose, deep set eyes and a pronounced brow.

In the Hall of Statues in Washington, D.C., is a cast likeness of Padre Kino. The work is based on a composite drawing of what he must have looked like, judging by recurrent hereditary features in the Chino family. The sketch of Kino was drawn by Tucson artist Frances O'Brien. After the skeleton was discovered, an anthropologist examined the skull and agreed Kino must have looked as he was portrayed by O'Brien. The skeleton also had the bowed legs of a horseman.

Padre Kino was far more than statues or memorials can communicate. He was a recognized pathfinder in the southwest. True to his vow of poverty, he was never known to keep a gift, never slept in a bed and never owned more than two shirts. He was unique in southwestern history, for he came to give. ☐



THE LIVING DESERT

The Desert Palm

by Susan Durr Nix

IS THERE A pool or golf course in the southwestern deserts that doesn't boast at least one palm tree, gaudy with red or yellow Malibu lights? Neatly trimmed of dead fronds (at \$15 or more per tree), palms declare our rapidly multiplying artificial oases as clearly as they do the natural ones. Palms, along with roses and rye grass, now thrive in Palm Springs and Phoenix, but a natural oasis is a genuine and greater miracle — a fertile, green haven supporting a profusion of life in the desert.

Ancient Egypt gave us the word oasis, a compound of "to dwell" (*oeuh*) and "to drink" (*saa*). The world's largest, the Nile Valley, stretches 1,600 miles through absolute desert, fed by the great Nile River. Smaller ones occur wherever springs or artesian wells bring underground water to the surface, or where local elevation causes extraordinary rainfall. Classic Saharan communities of date palms and people in the middle of nowhere are not orthodox oases, botanically speaking. Date palms were introduced by people long ago and eventually supplanted the natural vegetation, thought to be oleander and tamarisk. Only in their comparative isolation from plant disease and pests are North African oases "typical."

Nowadays we must look to our own deserts, particularly the Colorado Desert in Southern California, for a "true" oasis. From Palm Springs to the Salton Sea, there are more than 100 natural fan palm oases, holdouts from a moister age when the desert floor was a swampy sea surrounded by tropical plants. Only a few of the water-loving palms (*Washingtonia*) survived later climatic and geologic changes, not in stream-fed canyons where they now flourish, but along the lines of the San Andreas fault, where clayey soil dammed up underground water.

According to the late Randall Henderson, a desert pioneer who made a life-long study of these oases, the palms were later carried into the canyons as

seeds by men and animals. In particular, Henderson credits coyotes, who love the small, sweet, date-like berries of the fan palm, with the creation of the beautiful stands of this tree in California's Palm Canyon (the largest grove in the world) and dozens of other canyons in the Coachella Valley. Randall Henderson founded *Desert Magazine* and was deeply interested in the establishment of the Living Desert Reserve. The Reserve's fan palm oasis is named for him.



The Pushawalla Oasis near Palm Springs, California.

This fan palm is the only palm native to the western United States. It is restricted to the Colorado Desert and to one stand in the Kofa Mountains of Arizona. It also ranges briefly into Baja California. It is the rarest of palms in its natural habitat but the most common elsewhere, for it has long been cultivated as an ornamental tree. *Washingtonia* is the gift of the southwest desert to the streets of Beverly Hills and Miami and to the lush gardens of the Riviera and Hawaii, prized for its rapid growth and tropical associations.

Palms are broadly divided into feather-leaved and fan-leaved varieties,

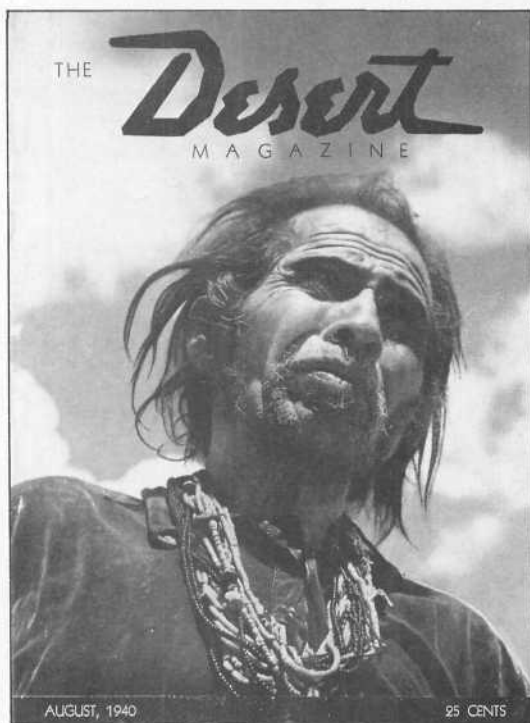
date palms being typical of the former. Independent leaflets grow out on both sides of the long mid-rib of each frond, like a feather. The connected leaflets of a fan palm radiate from a central point on the rib, so the frond spreads out, hand-like. Both kinds grow topsy-turvy compared to other trees. They have no branches, no bark, no annual growth rings and no woody cylinder. Their trunks are porous, spongy bundles of fiber with a topknot of tough evergreen leaves, in the center of which is the terminal bud where all growth takes place. (Know that when you eat the heart of palm served in fine restaurants, harvesting it kills the tree.) Moreover, palms don't drop their leaves like other trees. The dead fronds hang down the trunk, so much like a grass skirt that in Hawaii, *Washingtonias* are called hula palms.

Hundreds of pencil-thick rootlets anchor desert palms and absorb the water that enables them to reach a height of 40 to 100 feet and to live for 100 to 200 years. Palm trunks taper very little, being uniformly thick or thin depending on how close together they grow. Since they like to have their heads in the sun, they will shoot up, sacrificing girth for height.

Plants that share oases with fan palms vary significantly from place to place. There is no fixed plant community and therefore no predictable oasis ecology, or interaction between plants and animals, primarily because the palms are at home in both alkaline and non-alkaline soils. Most other plants are not so adaptable. Arrowweed and honey mesquite are among the few conspicuous in both soil types, according to Jan Zabriskie, director of the Deep Canyon Research Center. One study found an average of only eleven species of plants per oasis, but these ranged from maidenhair ferns and stream orchids to salt grass and ocotillo.

Regardless of the soil type, fire seems to play an important role in oasis ecology. It clears the ground of

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shrubby plants and debris, leaving the palms intact, for the most part, but minus their shag of dead fronds. Lacking cambium layers where growth in other trees takes place by cell division, and lacking bark (they have a sort of rind instead), palms are almost impervious to fire. The rind may be burned to a crisp and the green fronds may wilt and die, but in a few weeks new growth appears. Meanwhile, young palm seedlings germinate and develop freely because competition from other plants has been eliminated. Fire prevents the underbrush from growing unchecked and choking out the palms entirely.

Numerous animals are associated with oases. Bighorn sheep and mule deer visit, as do many birds, reptiles and rodents. It is a humid microhabitat that supports many insects and insect-eating creatures like bats, frogs and fish. Some animals are drawn to fan palms, among them hooded orioles, that build hanging nests in the fronds with loose threads pulled from surrounding leaflets, and western yellow bats that roost in the green crown. Lizards and rodents hide in the thatch; canyon wrens nest there, too. Despite the profusion of life, there appears to be only one creature that lives nowhere but in fan palm oases: the gaint palm-boring beetle (*Dinapate wrightii*).

This elusive and destructive beetle spends all but its adult life in the trunk of desert palms, gnawing labyrinthine tunnels that crisscross one another up and down the trunk. It takes three to five years from the time females lay eggs in a communal chamber, filled with grub-nourishing sap, chewed fibers and fecal material, for the new adults to emerge. Adults are capable of long flights and are preyed upon by bats. Mating occurs inside the tree, but not until males have fought over the females. They make an audible clicking sound in combat, which may be the origin of the Indian belief that evil spirits lurked in palm fronds.

As the grubs bore, they masticate the fibers with small blunt "teeth" in their stomachs. Digestion leaves behind tunnels tightly packed with frass, which fuses with the tree fibers like Plastic Wood. This strengthens the tree and keeps it standing long after the grubs have killed it. Some palms are more completely infested than others; a few broods of beetles can be tolerated without too much harm to the host. Despite their omnipresence, the beetles evidently do not present a grave threat to the survival of palm oases. [2]

CHUCK WAGON COOKIN'

Living Off the Land

by Stella Hughes



The mesquite bean was a favorite food of the nomadic tribes.

HAVING LIVED with the Apache Indians for 30 years, I'm always being asked what kind of food they eat. The answer is just about what we eat, with possibly more emphasis on bread, meat and potatoes. Leafy green salads and most vegetables are more often off than on a menu, but sweets, especially bakery goods, are popular. However, it wasn't always this way:

The western Apache was never any great shakes at farming, nor is he a farmer today. Before being supported on reservations by a conscience-stricken Uncle Sam, the Apaches had a diet of meat and undomesticated plants. Hunting and gathering seasonal foods kept them constantly on the move; they

seldom had a permanent residence. Those who were old or otherwise unable to travel seeded small plots of corn, beans and squash, but these crops made up only a small fraction of the food consumed in a year.

Large gathering parties harvested saguaro fruit, prickly pears and the Apache staple, mescal (*agave*). Mesquite beans ran a close second to mescal as a chief food. Also high on the list were acorns, piñon, black walnuts and jojoba nuts. In season, they gathered wild grapes, manzanita berries, elderberries, currants and chokecherries. Dozens of different kinds of grass seeds were harvested to be ground into meal.

In summer, all kinds of fresh greens

were available: dandelion, wild rhubarb (*canaigre*), lamb's quarter, pigweed, sunflower seeds, yucca fruit, prickly pear pods, wild onions, ground cherry (*tomatillos*) and several plants used for drinks, among them squawberry, mint, cota, rose hips and Mormon tea. This is only a partial list—there were many other kinds of wild foods harvested.

The modern Apache rarely harvests mescal today. Few gather and store any wild fruits, not even grapes or elderberries, both of which are relished by Anglos in wines and jellies. The luscious prickly pear apples are consumed by coyotes and bears, being shunned for the most part by the Indian. Few Apaches even know the common names for seeds or summer greens, much less the medicinal uses for many of the wild plants known to their ancestors. When asked for such information, most laugh and say, "I dunno. Just the old timers used that stuff."

There is one harvest the Apaches still participate in wholeheartedly, however, and that is of acorns from the black oak. In July and August, the mamas and the papas, the old folks and all the kids pile into the pickup and head for the foothills, there to camp and gather as many pounds of acorns as they can. The acorns that have fallen are gathered first, then a canvas or blanket is spread on the ground under the tree, and the limbs are shaken vigorously. Black oak trees grow up to 50 feet in height.

Apache women still grind shelled acorns into meal, which is used for acorn stew or made into small, flat cakes to be baked in embers. I've sat in the hot sun at Apaches rodeos, eating roasted acorns along with the spectators. You have to acquire a taste for acorns—many Anglos dislike them, claiming they are too bitter. Well, as a kid, I thought avocados and olives unfit to eat. Artichokes, asparagus and green chiles were high on my list of yucky foods. Now, no matter what the price, I relish all of these.

MILLION DOLLAR BLACKJACK

By Ken Uston

Now you can own the most important blackjack book ever published. This long awaited event in the world of gaming books presents the most complete coverage of the game ever printed. Only the world's most experienced professional blackjack player, Ken Uston, could have written this book. Heretofore unpublished details of professional play, cheating, team play, learning techniques and a host of inside secrets are revealed for the first time in print. * This is the story of how Ken and six sets of teammates won over \$4,000,000 from casinos around the world. * This is a textbook that will take you from beginner to intermediate, to advanced, to professional levels of play—with a system you can learn at each level. The Uston Advanced Point Count—complete in this book—previously sold for \$97. * This is the most complete glossary of blackjack terms ever printed. * This is a guide to all the previously published blackjack books and the major blackjack schools. * This is over \$500 worth of blackjack materials. * This is the book you cannot be without. BE THE FIRST TO HAVE YOUR COPY.

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There's a heck of a lot of difference between eating for survival and eating for pleasure. A bowl of acorn gruel doesn't do a thing for my taste buds, nor do I get excited over a mess of pig-weed greens, even when doused with vinegar. Yet, a starving person would look upon either as manna from heaven.

In the fall, during a good piñon year, Apaches vie with thousands of Mexican-Americans in gathering this delicious little nut. I've always had mixed feelings when we've gathered a good supply of piñons: I know there'll be a long winter ahead with sharp little pieces of nut shell in the rugs, filling all the ashtrays, in Levi pockets and even between the grandkids' bedsheets.

There are a number of recipes calling for piñon nuts, but I've never known the Apaches to cook with them. I don't blame them a bit: piñons are good eating just as they are. Anyone who has shelled more than a cupful knows what a tedious task that can be.


The squawberry or skunk bush is a small shrub found almost everywhere from Canada to Mexico. The berries are bright red, flattish in shape, covered by tiny hairs and quite sticky. They're very tart, so much so that the drink made of squawberries is called "lemonade" or "Kool-Aid" by the Apaches. The scientific name is *Rhus trilobata*.

Squawberry Drink

Grind squawberries in a food mill. Combine 1 cup ground berries with 4 cups water. Let stand for about 8 hours. Strain off juice. Dilute and sweeten to taste. Squawberry juice can be mixed with other juices or added for tartness to otherwise bland juices when making jelly.

Acorn Stew

Cut stew meat in small pieces. Sear meat in fat in heavy iron skillet. Season as desired (Apaches add only salt). Add water to cover and simmer until meat is tender. Stir in acorn meal to thicken. Some add red chile. Serve hot.

Living off the apparently inhospitable desert would seem an impossible feat to the novice, but several books recently published are crammed full of recipes using wild fruits, greens and nuts that are native to the southwest. *American Indian Food and Lore*, Macmillan Publishing Co., Inc., is the most informative in my opinion. *Warning*: I urge readers to be absolutely certain that wild plants are properly identified before preparing any recipes. 

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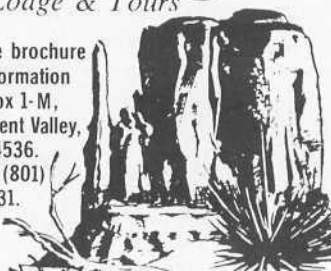
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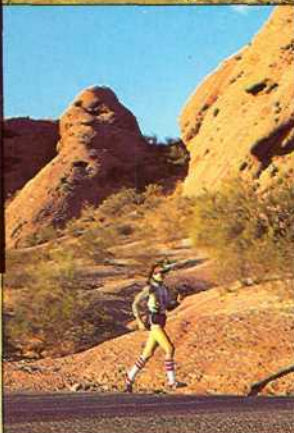
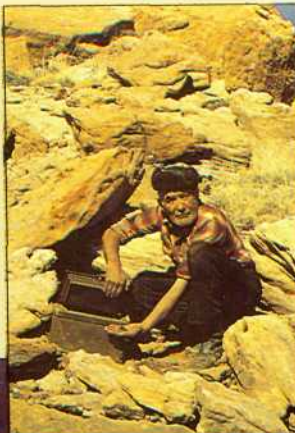
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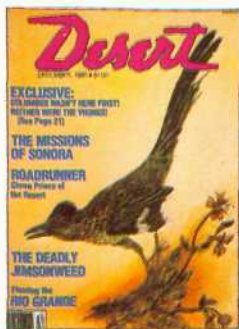
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ALAN J. KANIA

Reprieve for Brighty

by ALAN J. KANIA

IT WAS NOT the sort of orchestrated event that would have made Wild Horse Annie proud, but Grand Canyon's wild burros have been saved. Last July, the Fund for Animals embarked upon the most expensive wild horse and burro roundup ever staged in the west.

Wild Horse Annie fought for the preservation, management and control of wild horses and burros. From 1950 to 1977, Annie worked quietly behind the scenes to halt other kinds of roundups that would have sent thousands of these creatures to the canneries. In recognition of her 27-year avocation, she was singled out as the person responsible for the passage of two federal laws designed to protect wild equids on public land. However, the public lands described in the 1971 Wild Horse and Burro Act (*P.L. 92-195*) did not include several classifications in the interpretation of the regulations: Indian reservations, military land and National Park

Service property are exempt from the wild horse and burro legislation.

Thus, the Park Service decided to enforce seven federal mandates that protect the National Park Service ecosystem from exotic (non-native) species of plants and animals. The feral burro was thought to be the progeny of domestic animals released by prospectors, explorers and settlers, so to adhere to federal instructions to rid the parks of exotic species, three southwestern national parks began a removal program that would have been both easy and economical. Park Service marksmen began selective eradication programs on burros in high impact areas within Death Valley National Monument, Bandelier National Monument and Grand Canyon National Park.

In Grand Canyon, managers documented the damage allegedly caused by the burros within five years of the establishment of the park. Between 1924 and 1969, 2,800 burros were removed

from the park's inventory, but the partial removal did not change the downward trend of the park's ecosystem. Chief Ranger J.P. Brooks, reporting range status in 1932, stated that overgrazed conditions existed in all areas inhabited by burros. In many places, herbage growth was cropped to the roots; some species of shrubbery were totally destroyed. Soil erosion was also greater in burro infested areas, he claimed.

The emotional stigma attached to eliminating the "desert canaries" was complicated in the 1960s by Marguerite Henry's book for children, *Brighty of the Grand Canyon*. "Right to life" proponents used the subsequent movie, *Brighty*, as the key emotional rallying point to keep the animals alive in the Grand Canyon. A large bronze statue, cast from an original sculpture by Peter Jepsen for Stephen F. Booth Productions, was used in the movie and later donated to the Grand Canyon

Contrary to popular belief, the feral burro is relatively placid and easy to handle. (left)
Though sleepy-eyed, these burros in transit are not tranquilized. (right)

Visitors' Center in 1966. For years, children flocked to the courtyard to see "their Brighty."

In an effort to minimize emotional support for the canyon's burros, the statue was removed and stored in the back room of the park's archives. Keeping the dust off the statue is a wrap that has been described as a cape or a shroud, depending on one's viewpoint.

A volunteer worker in the archives tells of one young visitor to that area, normally off limits to the general public. The youngster, with tears in his eyes, peered under the chain barrier and whimpered, "Where's Brighty?" The volunteer took the child by the hand and led him to the statue languishing among the other relics. She was tempted to ask the child, "And now, would you like to see the gun we're going to use to kill Brighty?"

Jim Walters, Chief of Resource Management, is the "heavy" in the Grand Canyon management framework proposal. Said he: "We don't want to shoot these burros, but we are extremely concerned with the damage these exotics are causing in the park. We want them cleared out as expeditiously as possible."

The Park Service has determined that destruction of the wild burros would be the most humane and economic means of removing the unwanted animals. Over a three-year period, the Grand Canyon rangers would only have to budget an estimated \$53,000 to complete the unpleasant task, and to add fences to prohibit further infestation. Live trapping and removal would cost the Park Service an estimated \$225,000 per year.

Many organization and individuals protested the proposed eradication of the burros. However, only one organization was able to demonstrate the know-how and money to humanely capture and remove the stubborn animals. Cleveland Amory and the Fund for Animals offered to spend \$325,000 on a demonstration project to prove there were alternatives to shooting the animals. And Amory recently stated that his group is willing to spend more than a million dollars if necessary.

"We are very pleased," boasted Amory, "particularly considering the

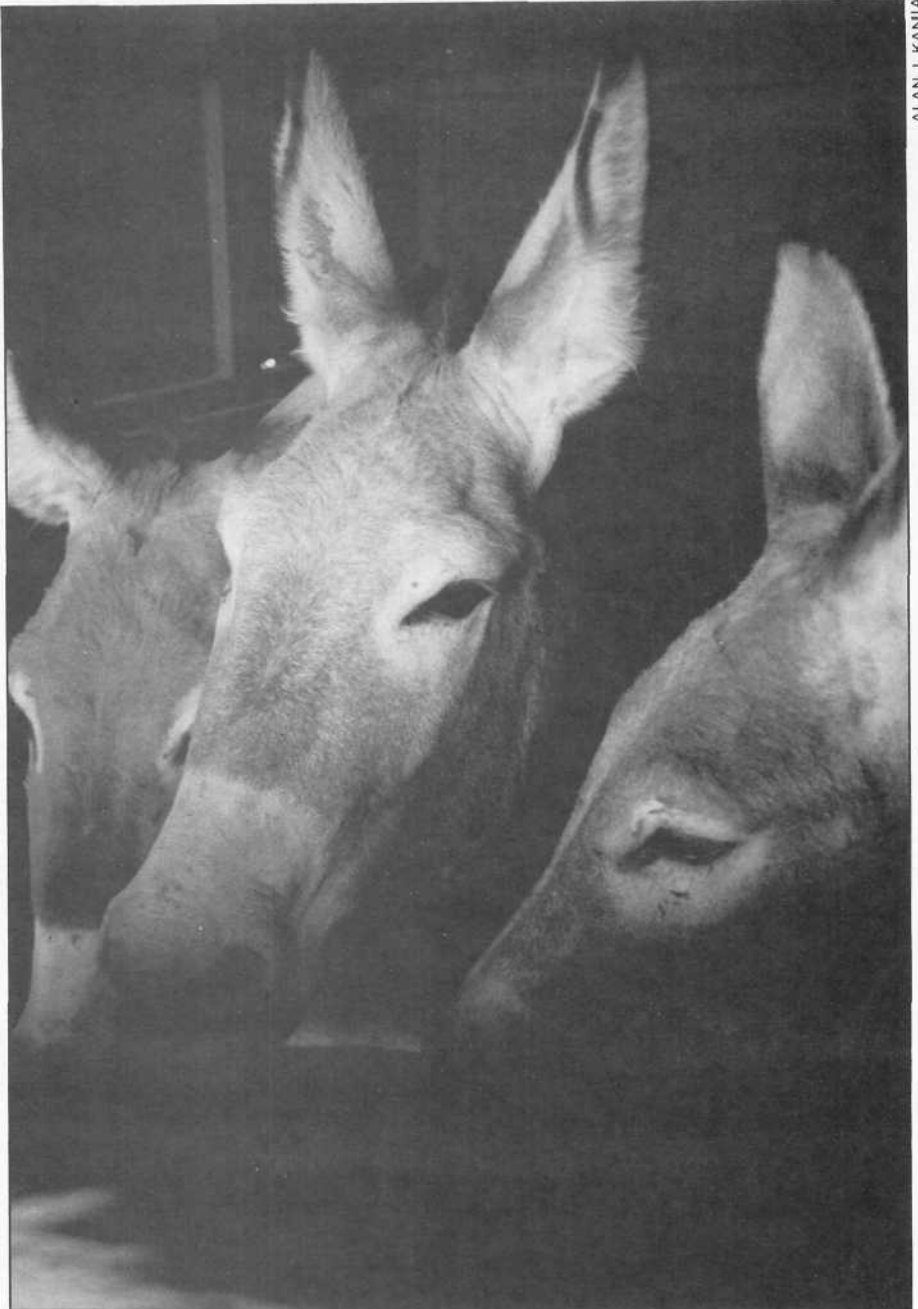
long and lugubrious history of these brave little animals — a history which up to now has amounted to nothing but unsuccessful rescue attempts, alternated with bloody slaughters."

Meanwhile, resource manager Walters addressed the public pressure initiated by Amory and other "obstructionists," as he calls them, in Washington: "We are not a public relations firm. We'll just attempt to give facts. We'll explain what the facts are and that is all we can do. We try to deal in facts. It is, we hope, a carefully researched biological analysis. We can't deal with the Bambi syndrome except by providing people with our research, feasibility studies and resources."

Park Service officials claim that the wild burro is not indigenous to the southwest. The service is on record as

believing that Spanish explorers and miners brought the first burros to the arid parts of this country. However, among the studies in the Park Environmental Impact Statement is a preliminary report written by Paul S. Martin, professor of Geoscience at the University of Arizona, at Walters' request. Dr. Martin discovered fossil bones and a hoof within the present burro environment in Rampart Cave. Martin reported that the specimen, dating back 26,000 years, is "indistinguishable from a modern burro hoof." While the study alone is not sufficient to reverse the long established Park Service policy of eliminating exotic species, Martin's evidence does question the official assumption that the burro is an unwelcome intruder.

Jim Walters dismisses Martin's re-



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port as an "interesting academic theory that is basically unsubstantiated — a minority academic opinion. It's being used as a straw by the horse and burro people ..."

THE ELDER statesman of wild horse and burro organizations involved in the ongoing controversy is the International Society for the Protection of Mustangs and Burros. Past president Velma B. (Wild Horse Annie) Johnston fought for the welfare of the wild equids from 1950 until her death in 1977. ISPMB founder Helen Reilly now continues the society's policy of multi-use management and control of all users of the public land.

Explains Reilly, "We feel that if the Park Service had properly surveyed burro population numbers in the past and had properly managed and controlled the herds before they became out of control, there wouldn't be the

"I've seen as many as ten bullets in 'em before they go down, let alone die. . . ."

necessity for such a drastic program."

ISPMB presidents Velma Johnston and Helen Reilly have had nearly 50 years of combined wild horses and burro protective experience between them. Together, Johnston and Reilly worked on the successful passage of two federal laws that give the equines enough protection to stem the wholesale slaughter of wild horses and burros throughout the west. ISPMB is currently assessing the possibility of new federal legislation to include national park lands in the present laws. The society also is researching evidence to prove that the ancestry of the North American wild horse goes back 60 million years, uninterrupted even by the Ice Age.

Unfortunately, though, ISPMB's annual budget is less than what the Fund for Animals spent in just two weeks at the Grand Canyon. And, too, the Park Service has been suffering from perennial budget cuts that have reduced current projects and made new projects an impossibility. Reiterated Jim Walters, "People are asking us to foot the bill instead of shooting the burros. We can't even afford our park salaries, government vehicle expenses and park interpreters!"

So it seems that Cleveland Amory

holds the emotionally stacked deck. His organization has raised the funds to figuratively buy the Grand Canyon, canyon by canyon. The current round-up, as Amory states, will affect all the burros and horses in the west. "The next time someone says 'shoot them,' " explained the portly crusader, "we'll have a proven, reliable alternative."

The nation's press was treated last July 25 to a pabulum view of rounding up wild burros with no stress, no injuries and no controversy. But several days before the reporters arrived, the wranglers lost a horse in a freak accident. The cowboys and the Fund for Animals denied any such fatality occurred; however, the injury was monitored over NPS radios and is now a matter of government record.

Dave Ericsson, chief burro wrangler for the Fund, pledges that no tranquilizers will be used, noting that the Bureau of Land Management tried an equine muscle relaxant during a Pryor Mountain Wild Horse Refuge roundup in 1968 and it didn't work. The body weight and chemistry of a wild equid was too difficult to accurately calculate, so mortality rates were excessively high. The first 43 burros lifted from the canyon, according to Ericsson, remained extremely docile during all phases of the roundup.

Jerry Owens, humane officer for the Fund for Animals, will try anything to prevent the Park Service from shooting the burros. Owens claims that burros are a particularly tough animal to kill. "I've seen 'em with as many as ten bullets in 'em before they go down, let alone die," he says.

But, despite the controversy, phase one of the roundup has been completed. The trials are over and the Fund's wranglers can begin in earnest. The final bray from the burros, however, will be heard in Washington, D.C. With the guidance and know-how of the International Society for the Protection of Mustangs and Burros and the supportive action of the American people, the wild burro may be given a final, absolute reprieve. Public indignation already has told the Park Service to keep brays instead of rifle fire resounding through the canyon. But the Park Service, and Walters in particular, won't surrender without the last word. "We attempt to deal in facts on this issue," concludes Walters, "and the cold, hard fact is the logistical facts of operating in the Grand Canyon. You can talk all you want when you're on the rim, but it's very difficult when you're down there with the burro." **[Z]**



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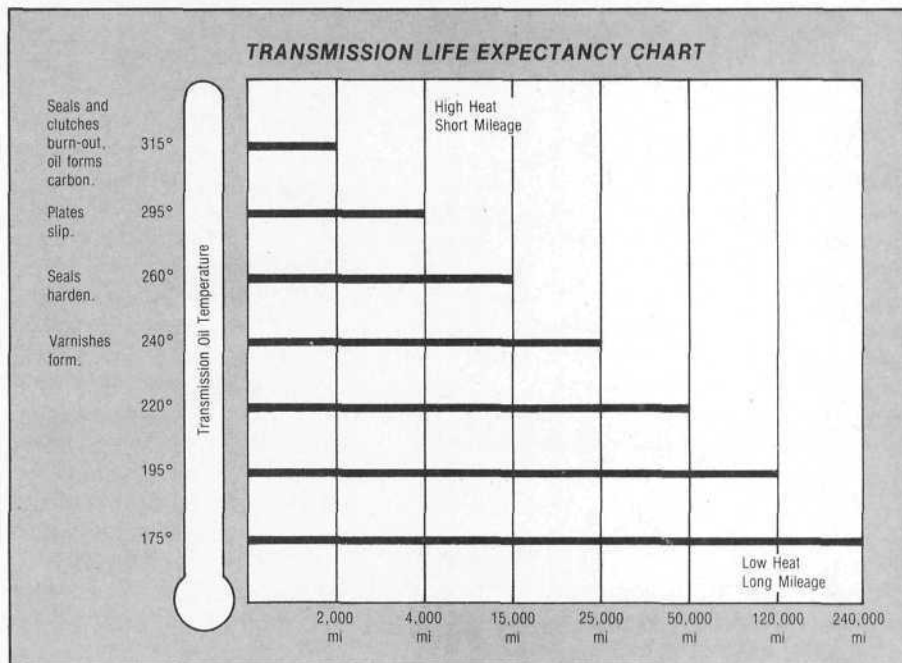
Cooling Hot Cars

MORE THAN 10,380,000 automatic transmissions failed last year, according to the rebuilders' trade association. Ninety percent of these failures were caused by overheating. Similarly, a motor service trade magazine study indicated 5,728,000 engine failures, many being the result of overheated oil.

Not all—in fact, not even a majority—of the failures involved recreational vehicles or passenger cars towing trailers, the usage most commonly blamed for chronic overheating of transmission fluid and engine oil. It can happen to any car, and is more likely to happen to the new breed of economy car than to the gas guzzling, big-engined behemoths of the recent past.

The reason is what engineers call the displacement-to-weight ratio, the simple relationship of the size engine to the curb or loaded weight of the vehicle. A pickup truck with a 454-cubic-inch V-8 (a popular Chevrolet offering) with a large cab-over camper grossing 9,352 pounds has a DTW ratio of 20.5, as does, approximately, a Volkswagen Rabbit with an 89-cubic-inch engine and a weight of 1,837 pounds. Add a 170-pound driver, a 140-pound passenger and 150 pounds of baggage to the VW and the ratio jumps to 25.69. You could add more than a ton of passengers and their gear to the camper before reaching the same ratio. So, you can see it is much easier to overload, and therefore risk overheating, a vacation-bound VW than a typical RV. Still, most people associate the need for transmission fluid and engine oil coolers only with RV service.

The other important factor in overheating either component is the quality of the engine oil or transmission fluid used. The better the quality, the greater the resistance of the oil or fluid to oxidation, which is the chemical reaction of oxygen and hydrocarbon compounds in the lubricant. Oxidation creates new and invariably undesirable compounds such as sludge, varnish and acids (often in combination), which accumulate to block vital passages while at the same time eroding the host metal.



Modern high-quality lubricants contain more and better additives to combat oxidation but, unfortunately, vehicle manufacturers have negated much of this improvement by recommending longer and longer intervals between changes. That, combined with the trend to smaller engines propelling heavier (for them) loads, creates a critical need for auxiliary cooling, simply because raising the lubricant temperature just 20 degrees doubles the rate at which oxidation takes place.


An automatic transmission is considered to be running hot when the fluid temperature is 200 degrees Fahrenheit or more. Trailer towing or heavy loads can create transmission temperatures of 350 degrees or more, even at moderate ambient temperatures. A transmission having a life expectancy of 120,000 miles at 195 degrees will fail within 2,000 miles at 315 degrees.

The symptoms of overheating are difficult for the average driver to detect. Transmission slippage, for example, cannot generally be felt until the slipping internal components are on the brink of total failure; the damage from a severe but short period of overheating may not become evident until 20,000 or 30,000 miles later. Meanwhile, the slippage can cause a 10 to

15 percent loss in gasoline mileage.

Among the various brands of auxiliary cooling units on the automotive aftermarket, the line marketed by Hayden, Inc. is perhaps the most complete. There are types of engine oil and transmission fluid coolers, or combinations thereof, to fit most every make and weight of passenger car and light truck. Prices start at \$29.95 for the cheapest transmission cooler. Thanks to a patented "quick-connect" system of attaching, units may be installed by do-it-yourselfers in 30 minutes or less.

Hayden products are available at automotive, RV and department stores everywhere. The company also manufactures the coolers carried by the J.C. Penny, Sears and Pep Boys chains. For further information, write Hayden Inc., Dept. D, 1531 Pomona Rd., Corona, CA 91720.

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The Best of DAVID MUENCH

"The idea of just happening by a location and accomplishing a great photograph any time of the day or year is one I tend to reject. The percentages of doing that well in a lifetime are just not favorable . . ."

Text by Don MacDonald

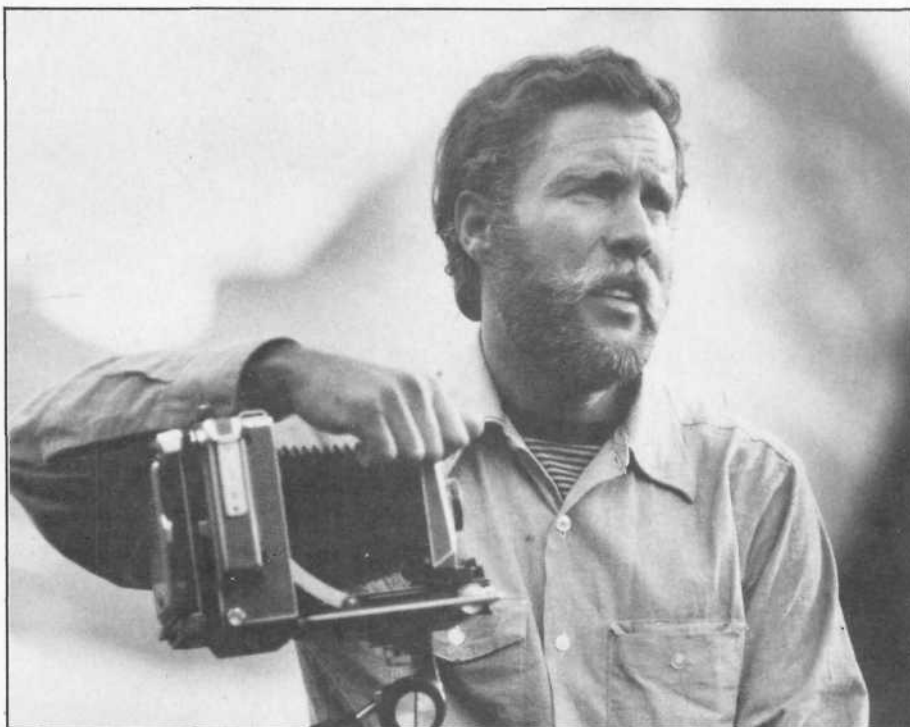
DAVID MUENCH, who selected the photographs which appear on these pages as his best, calls himself a "maverick who studied under the tutorship of nature." He owes little, he says, to the other great photographers of the desert landscape, except perhaps to his father, Josef Muench, who introduced him to the camera.

So, his photography is very personal. What he would choose as "best" from his work might not be the choice of his peers in the profession, for they would understandably judge with their own eyes. Muench doesn't photograph what he sees so much as what he feels.

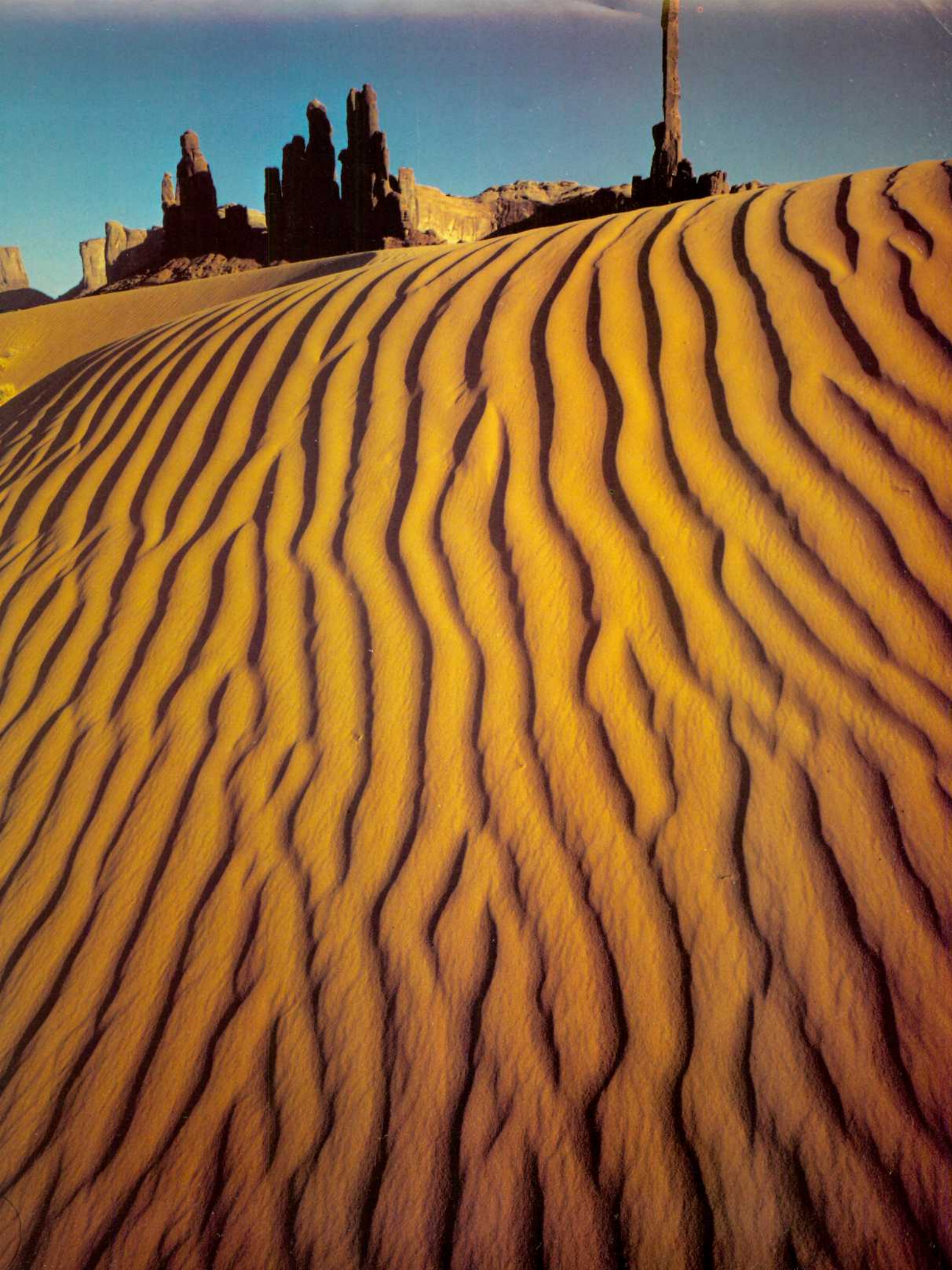
Neither are the pictures shown here

those which might be selected by an art director to illustrate a story or illuminate a calendar. Muench prefers strong, backlit moods, and sometimes his quest for mystery results in shadow, or those deep, resonant tones so troublesome to those who create the color separations needed for printing these pages. If the picture is of a cactus, he thinks, there must be more purpose than to count the needles.

David Muench was born on June 25, 1936, and lives and works in Santa Barbara, California, with his wife Bonnie and their two children. Of the several formal schools he has attended, he singles out the Art Center School of Design in Los Angeles as having been most basic in its influence. And that



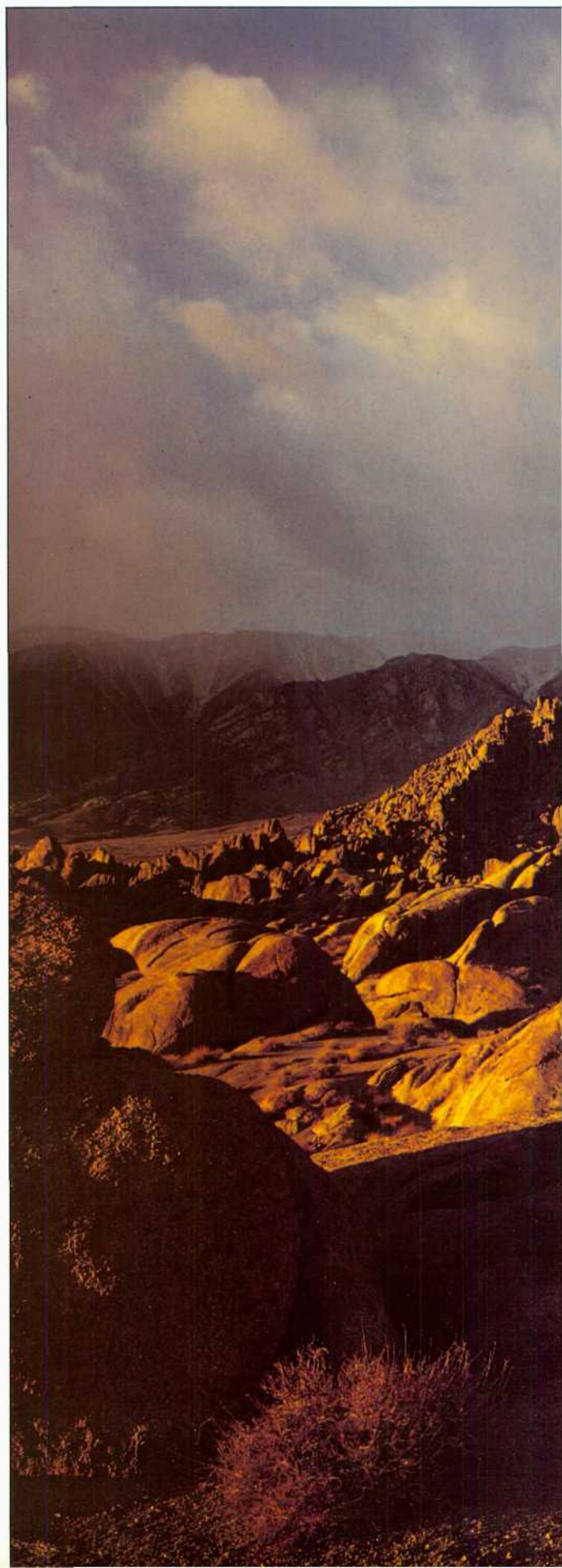
At 45, David Muench (above) is world-famous for his specialty of desert landscapes. Typical is the scene (right) which he titled Timeless Ripples. It was taken at Monument Valley, Navaho Tribal Park, Arizona.

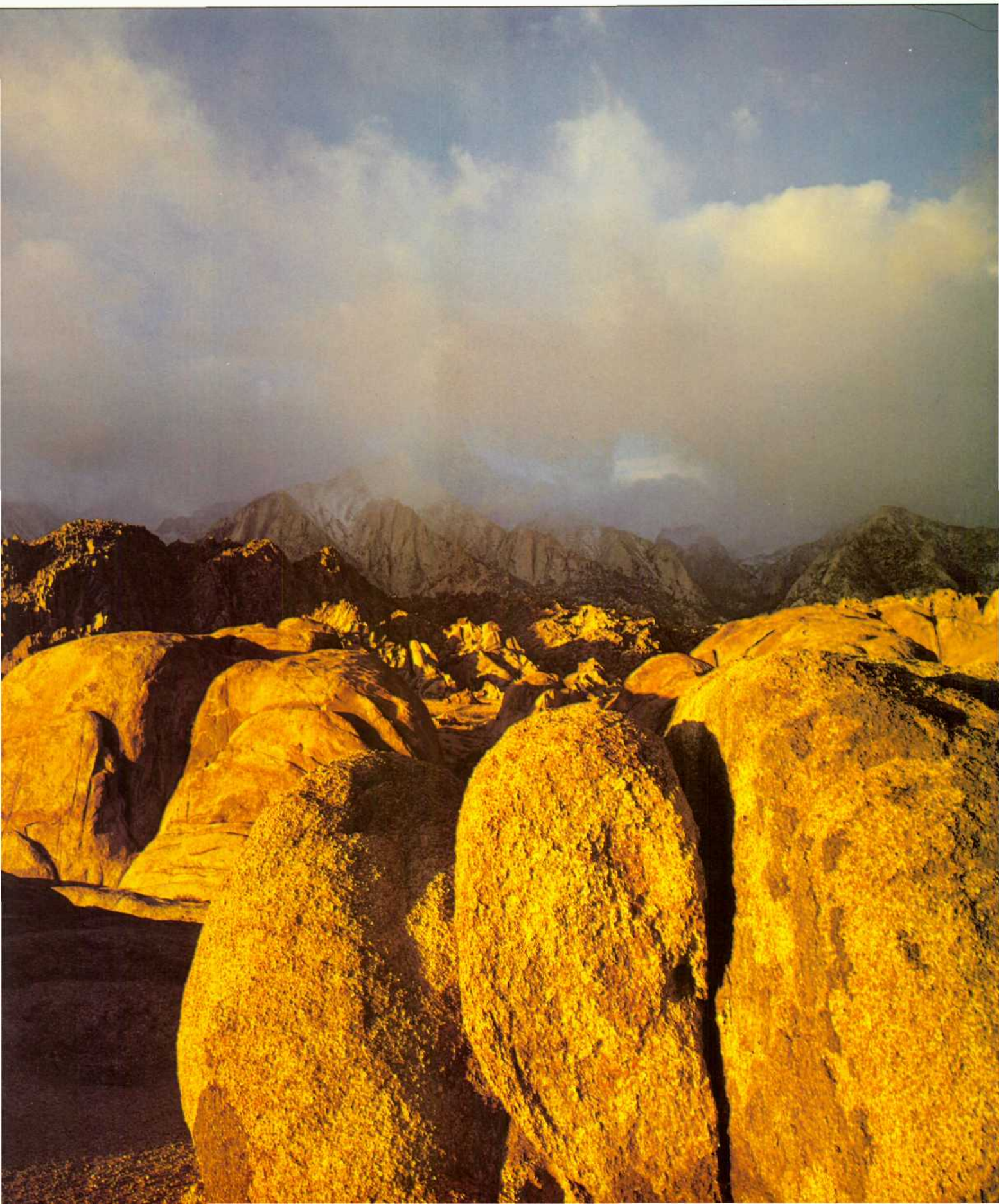


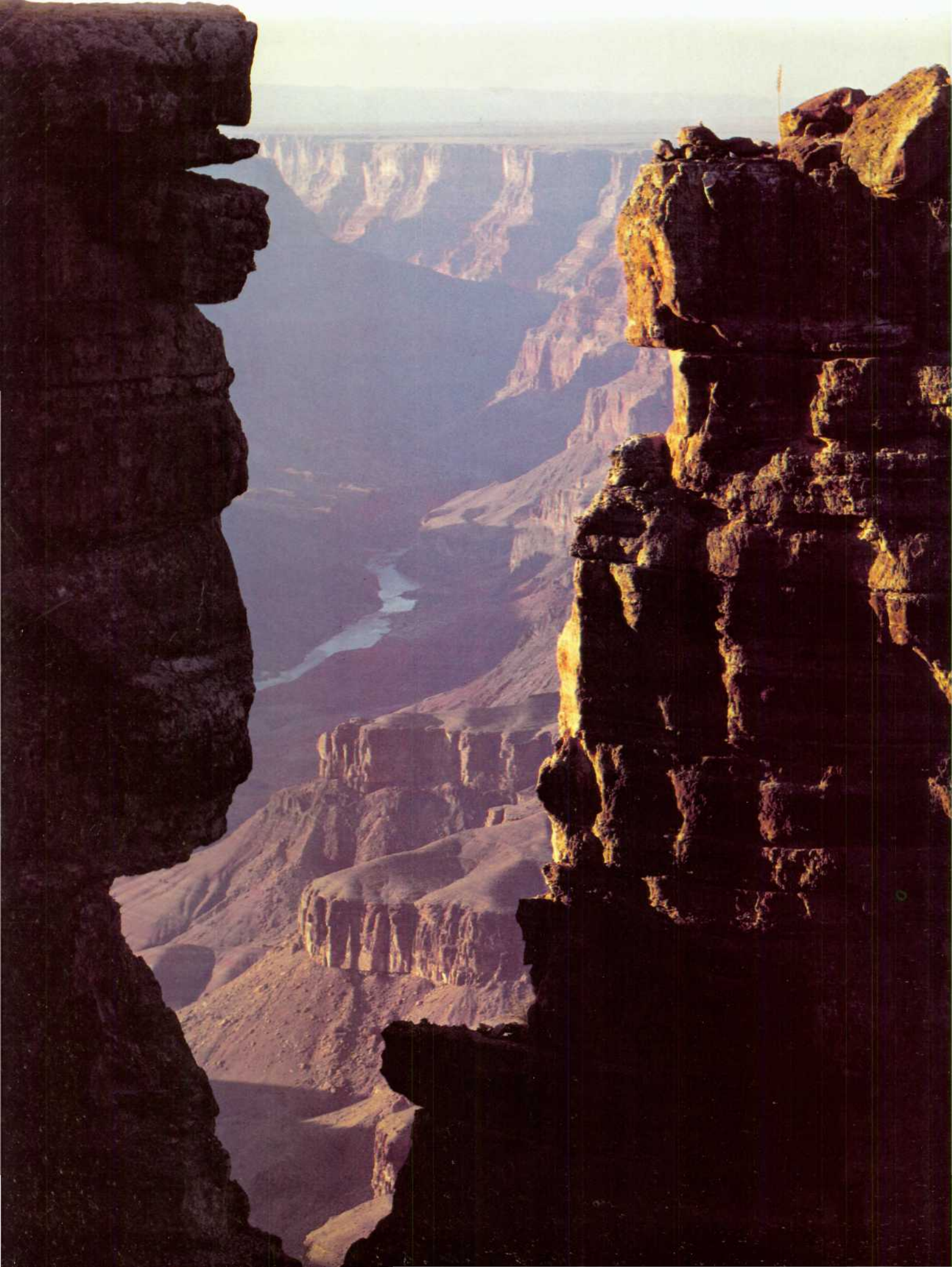
*"I could use a few more lifetimes to
accomplish all I have felt and seen."*



*The giant saguaro with its sometimes twisting arms
(above) contrasts with the moonscape (right) of the
Alabama Hills in California's Sierra Nevada.*







fits, for Art Center deals more with image and formal composition; Muench mastered the technicalities of photography at Rochester Institute of Technology in New York.

Choosing his subjects, which are largely landscapes rather than works of man, ancient or modern, begins with the study of topographic and relief maps. Muench is enough of a lay geologist to accurately predict features he could expect by interpreting contour lines and elevations in relation to other knowns such as climate, fault lines, precipitation and winds. He does not restrict his exploration to parks, monuments or other dedicated land, although he admits that the most photogenic terrain is usually found within those boundaries.

First there is exploration, mainly by four-wheel drive, to determine potential. If promising, he returns, often-times gaining final access on foot, having already decided the season and times of day that are best for photography. He usually works from sunrise to eight or nine in the morning and then again in the early evening, traveling or searching during the rest of the daylight hours. Exceptions would be caused by storms, photographing backlands, which must be captured at *their* convenience, or those soft, even, gray days that are so ideal for photography in canyons.

Equipment is all-important in where access is difficult. One does not, through carelessness, invite a time-wasting return. Muench favors his 4x5 Linhoff Techniker as a field camera, but carries along a 35mm as backup, both with complete lens systems. This means maybe 25 pounds in a day pack, including 81 (yellow) series filters to screen cyan and the often necessary polarizing filters to cut through haze.

"I try very hard to avoid failure," muses Muench. "I know my equipment and learn always from experience, but there never seems to be a solid visualization. Some little thing will trick me every time. Sometimes I must return."

In the foreword to his photographic essay on Colorado, published by Graphic Arts Center, Muench writes: *I am happiest when working in the field and especially in wild places. The further back I hike, the more the excitement and the greater the demand. Mysterious, bold, stark and monumental forms—moun-*

tains, canyons, valleys, hills and plains—are what particularly inspire and motivate my directions, both consciously and unconsciously.

"Most commonly I plan a scheduling of images," he says. "First I will discover and explore a strong location, sizing up its elements, getting a feel for its best potential. Then later, at a favorable hour of the day or time of the season, I will return and go to work. I spend much time planning and unplanning the events of my personal life to fit into an exacting pattern of photographing in the field—to fit into both the annual and daily flow of nature. An unusual summer rain, an unexpected wind, a spring especially rich in wildflowers, a fall of particular-

"Mysterious, bold, stark and monumental forms — mountains, canyons, valleys, hills and plains — are what particularly inspire and motivate my directions, both consciously and unconsciously."

ly heightened color— these are the kind of wild rhythms and events I try to plan myself into."

In practice, Muench has seen his time in the field dwindle from two-thirds to maybe one-half of his total working hours. He spends the other half in his laboratory or in selling. Working with Professional Ektachrome is exacting; you don't just send your slides off to Eastman Kodak. And, of course, though he loves it best, magazine work does not support the operation. Advertising photography is the name of the game. To obtain these lucrative assignments, one must be a skillful salesman, constantly canvassing and romancing the agencies.

Supporting sales is an extensive library of "stock" photographs, maintained by Muench's wife, Bonnie, which must be meticulously catalogued, as most individual scenes are shot from various angles and nuances of lighting and exposure. Usage is carefully logged, as one magazine doesn't wish to inadvertently print the exact duplicate of a picture already published by another. Also, of course, magazine sales are marginally profitable unless there can be multiple usage of at least some of the scenes.


Although the differences in their

work can be recognized by experts at a glance, David Muench has in a sense worked in the shadow of his famous father, Josef, who is still an active and sought-after photographer. Josef is perhaps more tuned to man, being famous, for example, for his portraits of Indians and their habitats. Josef prefers full lighting which, while it details, also tends to flatten the images, whereas David, as we've noted, seeks deeper, more resonant tones. Both, though, return time and again to photograph the same areas that David first saw as a child carrying his father's equipment. The son to this day considers those early travels of vital importance to his career, despite an initial reluctance to follow the father's profession. He resisted and, once resigned, he made it a point to follow no one, even to not more than glancing at other photographers' published works.

David Muench's favorite subject is the boojum tree, or cirio, that whimsical woody plant that grows only across a narrow belt of central Baja California and in a small patch on the Sonora mainland. Boojums challenge a photographer for, though sometimes as much as 60 feet tall, they bear an odd likeness to disproportioned, carrot-topped humans. Then in order come sand patterns and rock strata. Muench has no interest in current subjects, and not much in such nostalgia as ghost towns. His whole design is manless, man apart, unless man's presence in the picture lends to space and is thus appropriate.

That disregard for man can lead to neglect of the obvious. For example, Muench's dramatic picture of the Mesquite Flat Dunes in Death Valley (*Desert*, February 1981) shows a man clad in shorts and undershirt standing on the scorching sand. He was there to cast a shadow, but that is not the way to dress for the desert, as numerous readers pointed out.

However clad, it is true that man adds little to nature. Muench's concern is for his photographs to "communicate and champion the stark beauty that is nature—its wildness, its opposites. We need to relate to a sense of place and time, to our truth."

"I like to feel," he says, "that my work will lend something toward realizing where we, as humans, are, a sharpening of our vision, a quickened awareness of the natural world. I've dedicated the rest of my life to this pursuit. I could use a few more lifetimes to accomplish all I have felt and seen." 

Photography in the Grand Canyon (facing page) is always arduous and sometimes dangerous.

GEORGE W. VAN TASSEL

and His Anti-Gravity Time Machine

by Rosemary Evans
Photography by Jim Cronkite

THERE IS a strange rock in the California desert about 16 miles north of Highway 62, between Yucca Valley and Joshua Tree on a well-graded dirt road. It is estimated to weigh more than the Los Angeles City Hall; in fact, some authorities claim it is the largest "boulder" anywhere in the world. And, like a glacier, more of it lies under the ground than above.

Even stranger is its history; specifically, the years between 1929 and 1942 when an eccentric German immigrant named Frank Critzer called it home. Critzer had carved with chisel and dynamite a three-room cave in the giant rock, all of it below ground level, and lived there alone, snug beneath tons of granite towering seven stories above the sunken entrance.

Though he fled to the desert by choice from his job as a commercial fisherman and, briefly, worked in a Los Angeles area aircraft plant, Critzer was not really a recluse. After he had fashioned his living quarters and furnished them with a degree of luxury, he carefully graded the road to his rock, towing a scraper behind his old Essex. He then created an airstrip on a nearby dry lake bed and pilots, seeing his windsock flying, dropped down and landed, first from curiosity and later because they found Critzer to be an excellent mechanic.

He and his strange home in the giant rock also were popular with land-bound neighbors, who packed picnic lunches and drove out to marvel at his ideas and accomplishments. Actually, however, Critzer was as uncommunicative as his rock, offering nothing, asking nothing and telling nothing, except to his friend George W. Van Tassel.

Van Tassel had gotten Critzer his job at the aircraft plant in El Segundo and when the latter quit, they visited together frequently at the rock in the desert. Not much is known about Van Tassel's early career, except that he too was considered somewhat eccentric by his associates at Douglas, Hughes Aircraft and Lockheed. He was employed as a largely self-taught

flight engineer, but spent every spare moment probing the mysteries of what, prior to World War II, was considered the remote, at best, possibility of manned space flight. And if round-trips by humans from earth were "remote," the idea of visitations from elsewhere in space drew little if any serious thought from scientists and engineers of the time, except from Van Tassel.

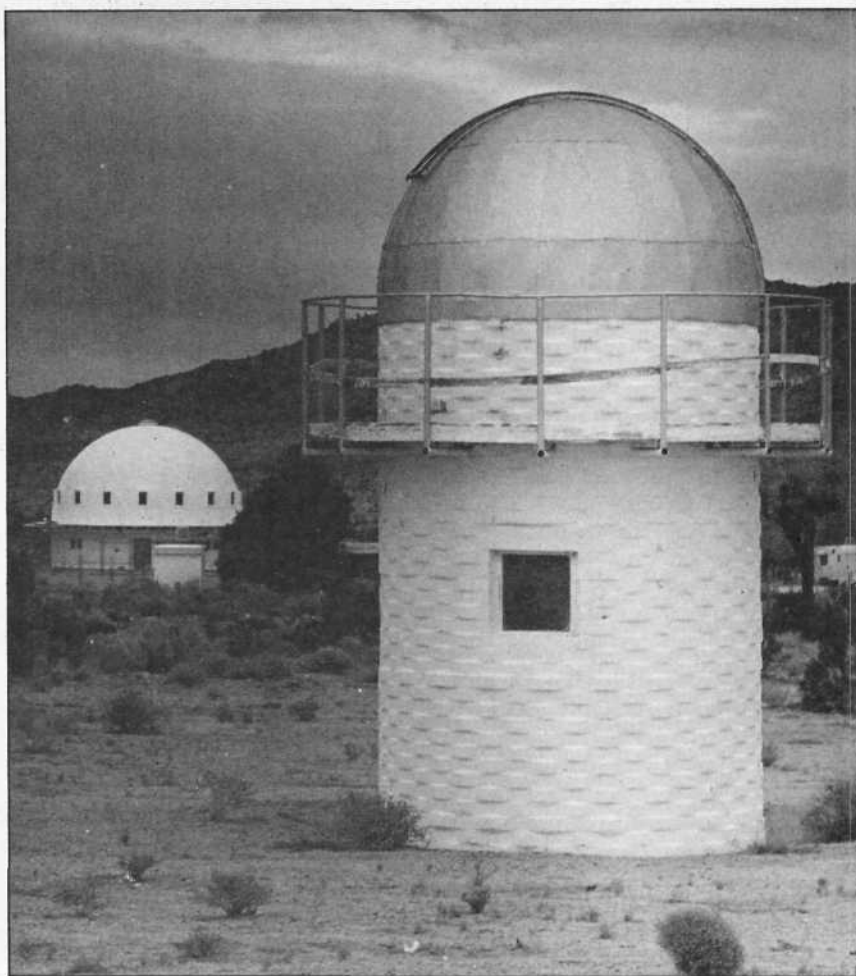
The friendship between the two men was deep, and Van Tassel was shocked when it ended abruptly and tragically on July 25, 1942. It seemed that the general war hysteria and fear of all things German had caused Critzer's neighbors to suspect he was a spy, communicating by radio directly from his rock to Adolf Hitler. The FBI did investigate, but found nothing more suspicious than a harmless old man with a German accent and an old, battery-powered Kent radio which could barely receive Jack Benny from Los Angeles, much less transmit coded messages to the Fatherland.

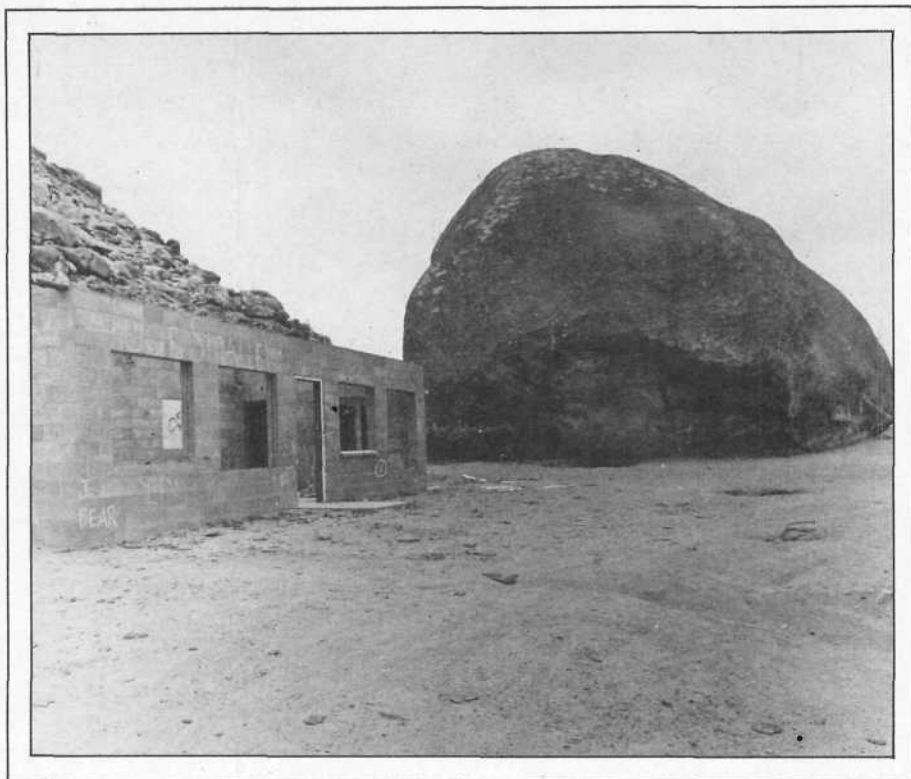
Nevertheless, rumors started by neighbors who forgot that Critzer had built their roads and helped pipe water to their homes persisted, and so three sheriff's deputies from Banning

showed up on that fateful July day to investigate once again. This time it was the allegation that Critzer had stolen gasoline, tools and dynamite.

Stories differ as to what actually happened when the deputies arrived at the rock. Some say Critzer panicked when he saw them and locked himself inside his rock. Tear gas fired by the deputies was said to have triggered the explosion of 200 pounds of dynamite that Critzer kept on hand for use in his mining operations. Another version has it that the deputies actually got inside the rock and questioned Critzer. When they announced they were taking him into Banning, it was alleged that he purposely touched off the dynamite after barely allowing the deputies time to escape. In any case, Critzer was blown to bits, but not his rock or the hand-hewn home within it. This was tragic, for there was no evidence at any time that Critzer was anything but innocent of all charges.

Van Tassel mourned his friend while the rock stood empty throughout the war years. In 1947, he leased 2,600 acres of government land, including that part upon which the rock rested, and moved in with his wife and three





The "Integratron" (far left, background) was put together like a jigsaw puzzle from non-metallic pieces. The Giant Rock (left) is thought to be the world's largest boulder. It was lived in first by Frank Critzer and then by the Van Tassel family.

young daughters. The rooms where he once had secretly helped Critzer develop a glass aircraft-engine crankshaft "stronger than steel" and formulae for Teflon-like plastics years ahead of DuPont now rang with children's laughter. Van Tassel installed a light plant and the girls traveled all the way to Twentynine Palms to attend school. It was a normal desert family by any standard, except that they lived in a rock.

The Van Tassels could even be considered gregarious. They built and operated a cafe to feed the campers who parked on their land. The airstrip was still in use, and rock hunters had permission to take home the semi-precious garnets, agate and jasper they found scattered about. The more serious hobbyists could dig and maybe uncover ruby, amethyst and striated quartz specimens. It was an "in" place for desert buffs to spend weekends, but one morning in 1951 an event occurred which led to much larger gatherings of another kind of buff.

It changed Van Tassel's life. According to his story, a great airship passed over the mountains on the far side of the air strip. It seemed faster and larger, maybe 400 feet in diameter, than any aircraft known at that time to man. At first, he kept his story to himself. Who would believe him? A prospector who saw the same craft from eight miles away would, and then the sighting was confirmed by another man just two miles away. George Van Tassel

had seen an Unidentified Flying Object; unlike the many others who claim to have shared a similar experience, he did something about it.

At Giant Rock, as it now was named, Van Tassel hosted the first of a series of annual Flying Saucer Conventions which, at their peak, drew 15,000 people from all over the world. He founded the "Ministry of Universal Wisdom, Religion and Science Merged," G.W. Van Tassel, Presiding Minister. By 1967 he had appeared on more than 300 radio and TV shows. Among believers, he was the acknowledged leader. No one doubted his claim to have hosted visitors from outer space on several occasions at his home inside Giant Rock.

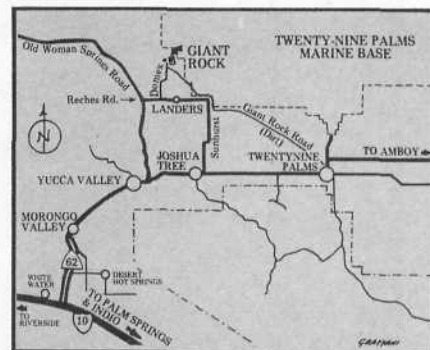
The ministry, guided by Van Tassel, even built a church of sorts about two miles from the rock. Called the "Dome" by neighbors, it actually was and is a technically remarkable and expensive structure entirely pieced together from non-metallic materials. It is 38 feet high and 58 feet in diameter. Unlike a church, however, no one except its builders has ever been inside. A sign outside the formidable fence which surrounds it says:

THE INTEGRATRON
An Electrostatic-Magnetic-Generator
For Basic Research & Experience Into
LIFE & TIME & ENERGY
From Intra Dimensional Concepts
Conducted by College of
Universal Wisdom

Details of its construction and purpose are obscured by jargon passed on, perhaps deliberately, by Van Tassel. It is said to contain an "electrostatic, magnetic generator with armatures more than four times larger in diameter than any others in existence." On the outside, there is "a rotating ring of silver spikes, designed to swirl around the dome at great speed." None of this makes much sense to engineers trained in conventional sciences. But, nevertheless, it and an adjacent, smaller dome are expensive structures, paid for by Van Tassel's Ministry of Universal Wisdom, whose members believe the "Generator" will work.

Unfortunately, George Van Tassel died in February, 1978, without completing work on his machine. Unlike his friend Critzer, however, his work did not die with him. His associates, led by his widow, Andrea, say they are carrying on where Van Tassel left off and claim the machine will soon be operational. To what purpose? No one who will talk seems to have that answer, unless they are those "visitors from outer space" whom Van Tassel claimed he hosted many years ago.

The cafe is now abandoned. Mrs. Van Tassel is reluctant to greet strangers. Not many pilots use the airstrip today. But where else within a few hours' drive of Los Angeles would one be more sure, some bright, moonlit night, of spotting a UFO? **[D]**



THE TRADING POST

BOOKS AND MAGAZINES

FOR SALE: *Desert Magazines*, Dec. 1937 to current 1981 — 20 binders. \$350. S. Deighton, Box 7, Sun Valley, CA. Phone (213) 768-1050.

FOR SALE: Collection of Arizona Highways dating back to 1943. For information write Leisa Bronson, Apt. K-17, 900 E. Harrison Ave., Pomona, CA 91767.

THE TACHE-YOKUTS, Indians of the San Joaquin Valley, Their Lives, Songs and Stories. 2nd ed. 1979. Printed. PB \$8.50 HB \$12.95 plus tax. Ship \$1. Cassette tape of 1940 Tache songs, \$5. Marjorie Cummins, 2064 Carter Way, Hanford, CA 93230. Quantity discounts available.

BOOK OF EARTHQUAKES and Earthquake Faults of California. \$5. Map of Earthquake Faults of California, \$5. Folded. \$5.50 Rolled. Add 11% for tax and handling. Varna Enterprises, P.O. Box 2216-A, Van Nuys, CA 91404.

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ALOE VERA Products. First Aide gel. Non-surgical face lift. Also complete line. Demonstrations by appointment. ORGANIC DEPOT, 38138 Sixth St. East, Palmdale, CA 93550 or (805) 273-3587.

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FOOD AND RECIPES

SOURDOUGH FOR THE SOUL. Make yours. Recipes too. Only \$2 to P.B. Inc., Box G, Cima, CA 92323.

GEMS

SHAMROCK ROCK SHOP, 593 West La Cadena, Riverside, CA 92501 (714) 686-3956. Parallel to Riverside Freeway. Come in and browse: jewelry mountings, chains, supplies, minerals, slabs, rough materials, equipment, black lights, metal detectors, maps, rock and bottle books.

MAPS

OLD STATE, Railroad, County maps, 70-110 yrs. old. All states. Stamp for catalog. Northern Map, Dept. DM, Dunnellon, FL 32630.

MISCELLANEOUS

WANTED: OLD INDIAN Trade Beads. Write Knotts, Rt. 2, Box 311, Chico, CA 95926.

PHOTOS WANTED: Editor seeks photographs of unique desert scenes. Imaginative compositions encouraged. Color transparencies and b/w enlargements 8x10 or larger accepted. Enclose SASE for return. P.O. Box 3067, Santa Cruz, CA 95062.

INCORPORATE in tax-free Nevada! Details free. CANI-DM, Box 2064, Carson City, NV 89701.

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AUTOMATIC GOLDPANNER. Pan for Gold the easy way. From under \$600. For further information write: Goldhound, 4078 Lincoln Blvd., Marina del Rey, CA 92091 (213) 306-2737.

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GOLD RECOVERY EQUIPMENT, all types, see demonstration units in operation. Concentrators, amalgamators, small ball mills, free catalog. Sierra Mining & Mfg., 450 E. chick, El Centro, CA 92243. (714) 352-8060.

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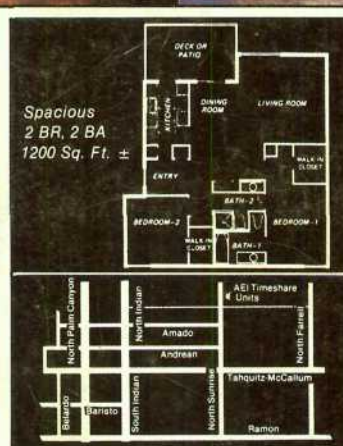
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